NUTRITION AND SMALL-SCALE FISHERIES IN INDIA

Edited by

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The document presents the discussions and conclusions of a Workshop on Nutrition and Small-Scale Fisheries held in Madras in March 1986. It has been issued in the Fisheries Circular series in order to bring data on the nutritional status of the fishing community on the east coast of India to a wider audience, and to present suggestions for nutritional improvement.

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ABSTRACT

At the FAO World Fisheries Conference in 1984 an action programme aimed at increasing the nutritional impact of fisheries in developing countries was endorsed and subsequently the Government of Norway provided funds to initiate activities.

In India this action programme led to a national conference on "Fish and Fish Products in Alleviating Malnutrition in India", in New Delhi. The conference recommended that nutritional considerations should be incorporated intc fishery policy, as expressed in the Eighth Five-Year Plan, and took action to ensure that this would be accomplished. In addition, a nutrition survey and a workshop were carried out through the FAO/Bay of Bengal Programme for Development of Small-Scale Fisheries (BOBP) Madras.

The workshop held in Madras from 3 to 5 March 1986, was organized jointly by BOBP and the Fishery Industries and Food Policy and Nutrition Divisions of FAO, Rome, to discuss the nutrition problems of fisherfolk revealed by the surveys, and to recommend appropriate strategies and actions to improve the situation. The 25 participants included planners, administrators and research persons in the fields of fisheries, nutrition, health and social sciences.

Conclusions

The workshop concluded that undernutrition is a serious problem among fisherfolk who belong to the lowest income groups in India, and is associated with their poverty.

Moreover, nutrition problems appear to be related to seasonal variations in income and food availability due to fluctuations in fish catches. The incidence of intestinal diseases corresponds to the same seasonal pattern and is related to poor environmental conditions and limited access to health care and other facilities.

The survey results also show the influence income has on the household's ability to meet its basic nutritional needs. Families with higher incomes also have higher food expenditure and higher caloric intakes from cereals.

Recommendations

In order to contribute to the alleviation of undernutrition in fishing communities, the workshop recommended that the following actions be undertaken:

National level

- Increase the supply of basic foods in fishing communities by establishing more ration shops, preferably near fish markets, and counter-balance seasonal effects by subsidizing food (cereals) or increasing cereal allotments during the off-season.

- Use fish products in on-going supplementary feeding programmes, such as the Noon Meal Scheme.

- Train intermediate level planners of state fishery departments in basic nutrition. Such short term (3-6 weeks) training courses could be organized on request by the National Institute of Nutrition (NIN), Hyderabad and training materials could be provided by local nutrition institutes.

- The Central Government should approach the National Nutrition Monitoring Bureau (NNMB) to include fishing communities as part of their future special survey programme.

State level

- Institute closer cooperation and coordination between fishery departments and other Government departments concerned with development and welfare and encourage the involvement of non-governmental organizations. For this purpose a coordinating body at the departmental level should be established and training should be given.

The Fishery Departments should:

(a) include specific nutrition goals in on-going programmes on the basis of existing information;

(b) examine project proposals for their likely nutritional impact and take compensatory measures if fisheries objectives are in conflict with nutritional objectives;

(c) build into fisheries projects, with the assistance of NNMB, a nutrition monitoring and evaluation component that will also allow for possible mid-course modifications;

(d) approach the NNMB for data and research needs and the State statistical departments for inclusion of nutrition indicators in their censuses in order to acquire a data base to support action to improve food consumption and nutrition.

International Agencies

- International agencies could assist by ensuring that fisheries projects have a nutrition goal and that monitoring and evaluation are built in by:

  - facilitating, for instance through BOBP, inter-departmental coordination between fishery departments and other departments concerned with rural development at State level. This would include sensitizing the departments to the needs for coordination and joint action and for providing background information;

  - BOBP could also encourage a widespread awareness of the nutrition problems and needs of fisherfolk by involvement of the media through their public relations officer. BOBP could undertake a similar role at national and State level to sensitize Government officials to the need for directing resources towards poorer sections of the fishing communities;

  - FAO should provide clear, concise and simple guidelines on how to include nutrition concerns into fisheries activities so as to facilitate the work of fisheries planners.

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1. INTRODUCTION

The World Fisheries Conference in 1984 endorsed a global FAO action programme: "The Promotion of the Role of Fisheries in Alleviating Malnutrition", which aims at increasing the nutritional impact of fisheries projects in two ways: (a) directly, by making more fish available for consumption by the undernourished, and (b) indirectly, through improving the living conditions and thus the food and nutrition situation of fishing communities. The Government of Norway provided funds to initiate this action programme.

In India, project activities were carried out in collaboration with the FAO/SIDA "Bay of Bengal Programme for the Development of Small-Scale Fisheries" (BOBP), Madras. Activities funded by the Norwegian Government were to conduct a nutrition survey and a workshop on "Nutrition and Small-Scale Fisheries" carried out through BOBP. Three states along the Bay of Bengal (Tamil Nadu, Andhra Pradesh and Orissa) were included in the activities. The workshop was held in Madras from 3 to 5 March 1986.

Prior to the surveys, BOBP undertook a desk review and resource investigation on the food and nutrition situation of fisherfolk. BOBP was selected to be involved in the FAO action programme because of its special concern with the quality of life of fisherfolk.

Another activity under the Norwegian funded project was a national conference on "Fish and Fish Products in Alleviating Malnutrition in India" held in November 1985 in New Delhi. The conference recommended that nutrition considerations be incorporated into fishery policies as expressed in the Eighth Five-Year Plan and took action to ensure that this would be accomplished.

The desk review and resource investigation on the food and nutrition situation of fisherfolk, which was completed in April 1985, revealed a general lack of information on this subject but indicated clearly that undernutrition is a serious problem and is associated with poverty. There are indications that gastro-intestinal diseases and infant and child mortality rates are higher among fisherfolk than among agricultural labourers. It also appeared that income and food expenditure and hence food intake varied greatly with the season.

Fisherfolk belong economically and politically to the weakest groups in the Indian society. Consequently fishing communities have a low standard of living and generally lack facilities such as clean drinking water, electricity, sanitation, education, medical care, communication, etc. Housing is usually of poor quality and this situation is aggravated by exposure to extreme climatic conditions such as cyclones and floods.

Fish catches fluctuate over the year as does income, depending on seasonal weather conditions and families do not have enough to eat on some days because of low catches. Because of the fluctuations of income from fishing, fisherfolk are often indebted to money lenders or traders.

Although not involved in the capture side of fisheries women are actively involved in the post-harvest sector, fish curing, drying and marketing. However with the introduction of mechanized craft, women traditionally engaged in marketing are increasingly displaced by male traders.

The nutrition survey was conducted in six fishing communities, two in each state, from May-December 1985 (Appendix 5). About 450 children below five years of age from 300 households were measured and weighed.

The data indicate that the incidence of malnutrition is high in the fishing communities. Nearly half of the children surveyed were chronically undernourished (stunted) and about one fifth were acutely so (wasted). More girls than boys were undernourished. The incidence of wasting seems to vary with the seasonal fishing cycle - and is probably worse during the monsoons when food and money are in short supply because of low catches and the high incidence of infectious diseases, which is related to poor environmental conditions. Overall the findings suggest that for many households food intake is inadequate and the diet very monotonous.

In addition illiteracy rates were high, particularly among females, which may influence attitudes toward child care and the use of health and other services.

The survey also pointed to the influence income has on the household's ability to meet its nutritional needs: those with higher incomes also have a higher food expenditure and higher caloric intakes from cereals. It is clear that those who have the least opportunities to earn are those who are most likely to suffer from malnutrition.

2. THE WORKSHOP

The workshop, which was held in Madras from 3 to 5 March 1986, was organized by BOBP and the FAO/Fishery Industries Division and the Food Policy and Nutrition Division, Rome.

The 25 participants, mainly from Tamil Nadu, Andhra Pradesh and Orissa, included senior/technical/decision-making level officials and research persons in the field of fisheries, nutrition, health and social sciences (see Appendix 1 for list of participants).

The purpose of the workshop was to discuss the findings of the nutrition survey and possible interventions to improve the nutrition situation of fisherfolk and to recommend appropriate strategies and action. The workshop consisted of three plenary sessions and three Working Groups (see Appendix 2 for the workshop agenda). The workshop stimulated great interest in the subject by the participants and lively discussions took place.

2.1 Working Groups

A synopsis of the discussions of the three Working Groups is given below. They were allotted the following items for discussion:

Group I Incorporating nutrition concerns into fishery projects

Group II Strategies for intervention and action

Group III Research needs

2.1.1 Incorporating nutrition concerns into fisheries projects

The workshop discussed the direct and indirect effects of fisheries projects on food consumption and nutritional status and the non-fisheries related activities that are of relevance. The direct effects of "fish as food" refer to its consumption value whereas the indirect effects of "fisheries as income" mainly involve the "commodity value" of fish.

Preamble

Fisherfolk communities are particularly marginalized because of their small size and number, lack of organization and physical isolation. Hence more strenuous efforts to reach these communities are needed and higher priority must be given to activities among fisherfolk.

It was felt strongly that given the many weaknesses of Government schemes, community participation would be a key feature in all proposed activities. Therefore people's movements and non-governmental organizations should be encouraged to motivate communities, build awareness of rights, act as advocates with Government agencies and ensure entitlements.

Direct Links Between Fisheries and Nutrition

As a food, fish provides an excellent balance of nutrients to the staple. Although it is low in calories, it is high in good quality protein. In addition it provides substantial amounts of calcium (when consumed whole) and iodine (marine fish only) to prevent goitre and cretinism. Fish liver and the flesh of darker species provide generous amount of vitamin-A, necessary to prevent nutritional blindness.

An additional quality of fish is the distinct flavour which the sauces made from fish products add to the food, thereby increasing the palatability of the bland staple food and hence the total amount of food consumed.

Most fishing communities consume fish regularly, although in small quantities since most of the catch is sold in order to purchase other foods, mainly cereals, which are the main source of energy in their diet. The potential for increasing home consumption of fish may be limited because traditional food habits and associated taboos tend to take precedence over nutritional needs. However better processing technology would improve the availability of fish for comsumption during the off-season.

The nutritional value of fish is of particular importance to young children and pregnant and lactating mothers. It was therefore suggested to launch an education campaign to encourage the inclusion of fish in the weaning diet, and to use fish products in on-going supplementary feeding programmes, such as the Noon Meal Scheme and the Integrated Child Development Scheme (ICDS). In this respect community participation would be essential, possibly through the donation of fish and the organization of its preparation.

More research to assess present and potential levels of fish consumption was deemed necessary. Information is missing on the following:

- quantity and frequency of fish consumption
- intra-family distribution of fish
- influence of socio-economic stratification on fish intake
- effect of seasonality
- degree of commercialization, i.e. proportion of fish that is sold.

Indirect Links Between Fisheries and Nutrition

Fisheries is the primary livelihood of the fishing communities. Therefore those aspects of fisheries that can provide increased income have great potential for improving the nutrition situation since such increases in incomes would enable households to purchase more food.

With production unlikely to rise substantially, increased income from fisheries must result from increased value added to the catch through better handling, processing, storing, transportation and marketing. Practical research, training and on site demonstrations of simple technologies and improved facilities could provide considerable income to fishing communities by preventing post-harvest losses, extending the shelf life of fresh life and improving its quality.

Indebtedness to merchants and richer fishermen which affects the availability of cash both for production and consumption purposes, is high among fishing communities due to seasonality and fluctuations in catch. It is therefore necessary to organize and regulate fish marketing to make it less exploitive, by encouraging fisherfolk to market fish themselves thus reducing oligopoly. To ensure better prices and access to urban or guaranteed markets, improving infrastructure is essential.

In order to distribute the benefits from the capture and sale of fish and fish products and from the various types of employment in the sector, fisheries projects should include components that ensure that poorer sections share in the benefits by:

- broadening the credit schemes to encourage enterprise, particularly by women, for trading and for processing and preservation activities, provided the economic viability of such schemes is ensured without resort to subsidies;

- guaranteeing prices and markets for fish through encouraging institutional purchasing and organized urban marketing;

- creation of off-season employment opportunities;

- creation of alternative income generation schemes when new technologies displace women traditionally engaged in marketing (it has been generally found that income earned by women is more likely to be used for family food purchases than that earned by men). At the same time day-care and creche facilities should be provided to compensate for maternal absence due to economic activities;

- promotion of low cost aquaculture, focussing on species for local consumption and urban marketing, which could offer employment opportunities, increased local fish supplies and cash income from sales.

Non-fisheries Related Activities Influencing Nutrition

Non-fish related activities that are of relevance to the nutrition situation of fishing communities are the following:

(a) Environment: improvements in the living conditions through better housing, increased availability of potable water and sanitation facilities, malaria eradication and relief after natural calamities can lead to improved nutritional status by a reduction in infection rates.

(b) Diversification of the food supply: the establishment of fair price shops near fish markets and the encouragement of agricultural production (where possible) such as kitchen gardens, small animal husbandry and social forestry would promote security of access to food at all seasons and decrease food prices.

(c) Diversification of the local economy: where relevant, activities such as rural works, cultivation rights on government land and traditional handcrafts can supplement cash income and hence lead to greater household food availability.

(d) Access to community services: improvement of the infrastructure such as roads, transportation, schools, health and community centres, etc.

(e) Nutrition and health education: to encourage better weaning and child care practices, wise food purchases, and the utilization of health services.

2.1.2 Strategies for intervention and action

Introduction

In India there is a large number, as well as a wide variety of programmes directed to improving the conditions of the poor. However fisherfolk have limited access to these programmes because they form a small minority of the poor and because of their geographical isolation. In addition they are not organized to make a strong claim for services and benefits.

There is therefore an urgent need to raise people's awareness of the possibilities offered by government schemes, and action is required to articulate local needs through elected representatives at all levels. The creation of people's awareness and provision of information could be done by linkworkers and the non-formal education system.

Responsibility for Actions

The workshop participants agreed that a coordinating mechanism must be established between government departments in general and not just the fisheries departments, where the budget and capacity are inadequate. The importance of cross sectoral communication between government agencies was articulated. This should include: fisheries, nutrition, health, civil supplies, education, human resources development and agriculture.

Action to ensure an equitable share of benefits to fisherfolk from both general government programmes and fisheries programmes and strategies for implementation at national level, State level and by international agencies are given below. However any proposed activity must be planned specifically for the community it is designed to serve, because of location-specific problems.

National Level

- Increase the supply of inexpensive food in fishing communities by making more Fair Price Shops of the Civil Supplies Corporation available, preferably near fish markets.

- Counterbalance seasonal effects by subsidizing food (cereals) and or increasing cereal allotments during the off-season.

- Approach the National Nutrition Monitoring Bureau (NNMB) to include fishing communities as part of their special survey programme.

State Level

- In order to promote the incorporation of specific nutrition concerns in fisheries projects at the design state, intermediate-level planners of State Fisheries Departments need basic training in local nutrition problems.

It was agreed that such short term (3-6 weeks) training courses could be organized by the National Institute of Nutrition (NIN), Hyderabad on request. Training materials could be provided by local nutrition institutes.

- In order to acquire a data base to support action to improve food consumption and nutrition the State fisheries departments should approach the National Nutrition Monitoring Bureau (NNMB) for data and research needs and the State statistical departments to include nutrition indicators in their censuses.

In addition widespread awareness of the nutrition problems and needs of fisherfolk, together with possible solutions, should be created by involvement of the media. Regular spots on All India Radio would be a good way to start action in this regard.

The State fisheries departments should undertake the following action:

- include specific nutrition objectives in on-going programmes on the basis of existing information and build, with the assistance of the NNMB, a nutrition monitoring and evaluation component in each project that will also allow for possible mid-course modification;

- examine project proposals for their likely nutritional impact and take compensatory measures if fisheries objectives are in conflict with nutritional objectives;

- institute closer cooperation and coordination between the various Government departments involved in development and welfare (housing, water supply, sanitation, nutrition, health, etc.) and encourage the involvement of non-governmental organizations;

- establish a coordinating body at the departmental level for this purpose.

International Agencies

International agencies should ensure that projects have a nutrition goal and that monitoring and evaluation are built in. This will allow for more detailed analysis and assessment of nutritional and overall socio-economic changes during project implementation. Regular assessments would indicate whether or not the planned results are achieved, reveal unintended negative developments and ways to remedy them.

FAO should provide clear, concise and simple guidelines as to how to include nutrition concerns in fisheries activities in order to facilitate the work of fisheries planners. In addition fishery department staff need to be sensitized to the available national and State schemes that could be used to alleviate the nutrition problems of fishing communities.

Arising from this sensitization, action should be taken to institute closer cooperation and coordination between the various Government departments involved in development and welfare. BOBP could facilitate such inter-departmental coordination between fisheries departments and other concerned departments particularly in Tamil Nadu, Andhra Pradesh and Orissa. This would include sensitizing the departments to the need for such coordination and providing background information. International agencies such as FAO should undertake a similar role at national level.

FAO/WHO could support the collection of information on nutrition and health problems and promote action to improve the situation of fisherfolk.

There appears to be a need to promote a more rigorous planning and project management in Government departments. Training inputs for this could be considered with support from donor agencies.

FAO Methodology on Incorporating Nutrition Concerns in Fisheries Projects

Application of the methodology, which is described in Appendix 4, can lead to improved nutrition in many ways. Generally, priority can be given to projects and activities with objectives and outputs likely to benefit people most affected by malnutrition: the poor, the under- and unemployed, those in remote areas, etc. Fishery projects or their components can be designed so that an increased number of malnourished people participate in the benefits while considering the trade-offs involved and possible changes in the rate of return. On-going management or future expansion can be influenced through monitoring and evaluation of nutritional effects.

The workshop participants felt that the guidelines present an ideal situation and require elaboration to deal with less than ideal situations. Therefore several simpler versions are needed to allow alternative approaches.

It was also thought that time and money to conduct an in-depth nutritional study of the project area is generally a constraint. Therefore evolving of a rapid assessment methodology is necessary.

The FAO methodology should provide guidelines on how to include the following in project planning:

(a) specific nutrition objectives, which can be assessed both qualitatively and quantitatively;

(b) built-in nutrition monitoring and evaluation with recommendations on the types of institutes that undertake such exercises;

(c) provision for mid-course evaluations and appropriate modifications.

2.1.3 Research needs

Considerable discussion focussed on the ethics of surveys. It was strongly felt that surveys generally disturb the community under study and should therefore only be undertaken in communities for which some development action is planned. Only data, necessary for the planned action should be collected.

Existing Data Bases

It was generally agreed that there is inadequate access to reliable data. Nutrition information on fisherfolk is very limited and of low interpretative value due to limited sampling and biases in sampling. The ICDS (Integrated Child Development Scheme) collects data, mainly in urban, tribal and rural areas, not in fishing communities. The National Nutrition Monitoring Bureau (NNMB) collects data on the basis of population distribution by occupation. Fisherfolk are only a very small proportion. So far nutrition information has not been used by fisheries planners because they have not been aware of the poor nutrition situation of fisherfolk and also because they have not been sensitized to its use. In addition nutrition institutes should make the collected data more accessible to users in governmental departments.

Priorities for Research

The nutrition situation of fisherfolk is of particular concern because fishing communities present problems not found elsewhere: they do not produce their staple food but are dependent on markets, which supply only a small variety of food. The seasonality in income, high morbidity and mortality rates and lack of services, poor sanitation and poor supply of water, contribute to their precarious nutrition situation.

The following information could be collected so that their problems would be better understood and reported:

(a) nutritional status disaggregated by socio-economic group (including infrafamily differences);

(b) what/how much/how often, fish is consumed by which household member;

(c) food/non-food expenditure pattern;

(d) seasonal variation in catch/income/diet;

(e) effect of seasonal variations on different socio-economic groups;

(f) morbidity/mortality rates disaggregated by socio-economic groups;

(g) time allocation of women with young children;

(h) utilization of existing government services regarding nutrition/health/welfare;

(i) distribution of employment and income benefits of different production technologies;

To the extent possible, nutrition indicators should be incorporated in on-going surveys (socio-economic, extension or technological research) and interpreted from the same analytical framework.

The proposed research should be conducted by:

- on-going projects as part of their monitoring and evaluation exercise;
- Indian institutes by using their student field programme;
- assistance from other agencies or resource persons from outside India;
- local health centres by adding onto their workload at limited cost.

Planners require this information on the causes and consequences of malnutrition to make decisions regarding the allocation of resources and to choose appropriate action. These decisions require information on prevalence rates, disaggregated by socio-economic groups. Project implementors and management staff require information on nutritional change over time within the project area and linked in some way to project inputs. An over-riding concern is that nutritional data, to be most useful, must be presented so as to be easily interpreted by those non-nutritionists who are responsible for making decisions which eventually influence nutrition.

In addition information obtained from the monitoring and evaluation of nutritional impact of development projects and other relevant interventions, should be available to planners. These files should also include failures as lessons from which to learn.

2.2 Plenary Sessions

The plenary sessions were provided with background to the living conditions of fisherwomen on the east coast of India in a paper prepared by BOBP staff (Appendix 4). Subsequently there was opportunity to discuss the implementation of the nutrition surveys and their findings which are given in detail in Appendix 5. The remaining Appendixes 6, 7 and 8 are abstracts of background papers on fishery policy and nutrition and research needs which were given to the working groups for information.

Discussion in the plenary sessions endorsed the findings and recommendations of the working groups and considered that action should be taken along the lines suggested.

APPENDIX 1

List of Participants

Dr M. Abdul Kalam	- Dept. of Anthropology University of Madras
Ms Karuna Anbarasan	- Extension Consultant, BOBP
Mr Arne Andreasson	- Sr. Development Adviser, BOBP
Ms V. Bhavani	- Documentalist, BOBP
Ms F. Chandrasekharan	- Dy. Director of Fisheries, Madras
Dr Chitra Siva Kumar	- Dept. of Sociology, University of Madras
Dr Rajeswari Dalbehera	- Dy. Director, Health Services Nutrition, Bhubaneswar
Ms M. Devadoss	- Dy. Director of Fisheries, Madras
Ms Barbara Harriss	- Lecturer, London School of Hygiene and Tropical Medicine
Ms Catharina van Heel	- Nutrition Consultant, FAO, Rome
Dr Suraiya Ismail	- Nutritionist, Food Policy and Nutrition Division, FAO - Rome
Mr David James	- Coordinator Small Pelagic Projects, Fish Utilization and Marketing Service, FAO - Rome
Mr M.C. Mahapatra	- Commissioner of Fisheries, Hyderabad
Mr P. Mohapatra	- Addl. Director of Fisheries, Bhubaneswar
Mr Tirfe Mammo	- Socio-Economist, Associate Professional Officer, BOBP
Mr Murali Mohan	- Regional Dy. Director of Fisheries, Kakinada
Mr Daniel Pedersen	- Attache Technical Adviser (Development) DANIDA-Delhi
Dr N. Pralhad Rao	- Dy. Director, Field Studies, National Institute of Nutrition, Hyderabad
Dr K. Prema Ramachandran	- Dy. Director Reproductive Physiology, National Institute of Nutrition, Hyderabad

Dr Vanaja Ramprasad	- Nutrition Consultant, BOBP
Mr Rathindranath Roy	- Consultant, BOBP
Dr S.G. Srikantia	- Former Director, National Institute of Nutrition, Hyderabad
Ms Diana Tempelman	- Socio-Economist, Associate Professional Officer, BOBP
Mr T.K. Thomson	- Doctoral Fellow, Madras Institute for Development Studies

APPENDIX 2

Agenda and Timetable

FII/ESN - BOBP Workshop Nutrition and Small-Scale Fisheries
3-5 March, 1986, Madras

Programme

09.00 - 10.00 - Registration of participants, Wallajah room

10.00 - 10.30 - Opening and welcome
L.O. Engvall - BOBP, Madras
D. James - Fishery Industry Division, FAO, Rome

10.30 - 11.00 - Coffee break

11.00 - 11.30 - Living conditions of fisherwomen along the East Coast of India, Karuna Anbarasan

11.30 - 12.00 - Nutrition and Small-Scale Fisheries - Results of nutrition survey in six fishing communities, Vanaja Ramprasad

12.00 - 13.00 - Panel discussion

13.00 - 14.30 - Lunch break

14.30 - 17.30 - Plenary session - introduction into "Incorporating nutrition into fisheries projects" Suraiya Ismail

- Discussion group procedures, R.N. Roy

- Continued in discussion group I, II and III

Objective:

Focus attention on the nutrition problems of fisherfolk and the possible causes, to familiarize with the subject

- Tea break at a time convenient

Tuesday 4 March

09.00 - 10.00 - Plenary session, Wallajah room
Sharing of understandings of the discussion groups

10.00 - 13.00 - Discussion groups

Objectives:

Group I : to discuss strategies for interventions/actions that should be taken by different sectors including fisheries in a multi-sectored approach. The case of Andhra Pradesh, Orissa or Tamil Nadu;

Group II : to discuss the application of the draft guidelines (FAO/ESN) on how to integrate in the Indian situation nutritional considerations in the planning, implementation and evaluation of small-scale fisheries projects.

Group III : To identify areas for specific studies that could be undertaken by Indian research institutions (in the areas of nutrition/health/socio-economic/fisheries).

- Coffee break at a convenient time

13.00 - 14.30 - Lunch break

14.30 - 15.30 - Continuation of discussion groups

15.30 - 16.15 - Tea break - Wallajah room, preparation of groups presentation by the chairpersons/rapporteurs

16.15 - 17.30 - Plenary session, Wallajah room, consolidation of the groups' recommendations

Wednesday 5 March

09.00 - 10.30 - Plenary session, Wallajah room, rationalizing the groups' recommendations and setting of priorities

10.30 - 11.00 - Coffee break

11.00 - 12.30 - Panel discussion on incorporating the recommendations in the Government/agencies/institutes policies and planning

12.30 - 13.00 - Word of thanks
L.O. Engvall
D. James

13.00 - Lunch

APPENDIX 3

List of Reading Material

FII/ESN - BOBP Workshop on Nutrition and Small-Scale Fisheries
3-5 March, 1986, Madras

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1. Karuna Anbarasan - Living conditions of fisherwomen along the East Coast of India

2. Elizabeth Campbell-Asselbergs - Incorporating nutrition into fisheries projects (Background paper)

3. Elizabeth Campbell-Asselbergs - Research needed to support the use of fisheries to ameliorate malnutrition (Background paper)

4. George Kent - National Fishery Policies and the Alleviation of Malnutrition in the Philippines and Thailand
FAO Fish.Circ., (777):31 p. 1984

5. Vanaja Ramprasad - Nutrition Survey in Fishing Communities of Tamil Nadu, Andhra Pradesh and Orissa

APPENDIX 4

GCP/INT/417 (NOR)

BAY OF BENGAL PROGRAMME
GCP/RAS/040/SWE

FOOD POLICY AND NUTRITION DIVISION
FAO, ROME

LIVING CONDITIONS OF FISHERWOMEN ALONG THE EAST COAST OF INDIA -- WITH SPECIAL REFERENCE TO ANDHRA PRADESH, ORISSA AND TAMIL NADU

Paper presented at the Workshop
"Nutrition and Small-Scale Fisheries"
(3-5 March, 1986)

by

KARUNA ANBARASAN

Development of Small-Scale Fisheries in the Bay of Bengal,
Madras, India, March 1986

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1. INTRODUCTION

This paper seeks to provide an overview of the living conditions of women in small-scale fishing communities in Andhra Pradesh, Orissa and Tamil Nadu and to point out its relevance to the nutrition situation of fisherfolk. The information is derived from existing BOBP publications on subjects varying from general fisheries to specifically about fisherwomen. As a greater number of studies on fisherwomen have been undertaken in Tamil Nadu, the information pertaining to this state is more elaborate.

The small-scale fisheries sector plays a significant role in Indian fisheries. It contributes about 62 percent of the country's fish production (1)1/ hence this sector makes a "vital dietary contribution" (2) to the economy of India.

In marine small-scale fisheries, men are directly involved in fishing, while fisherwomen take up allied tasks like fish processing, curing, preserving, marketing and net making.

Besides the fisherwomen's economic role in the communities, they play a vital role with respect to their families. They rear and raise children, purchase grains/vegetables and prepare meals. They also distribute food among family members which, in accordance with the existing community attitudes, means more food for the males.

2. TRADITIONAL FISHING VILLAGES - AN OVERVIEW

2.1 Andhra Pradesh (3)

There are some 450 coastal fishing villages and about 380 fish landing centres in Andhra Pradesh. According to the Central Marine Fisheries Research Institute (CMFRI) the total number of active fishermen was 84 000 in 1980.

Some 36 000 craft are engaged in marine fishing. Of these, 99 percent are traditional and non-mechanized. Ownership of gear and craft is highly centralized and most fishermen work for wages or a share of the catch. The average income for a household of 5 members ranges from Rs 2 500 to Rs 3 000 per year. In the northern and southern part of Andhra Pradesh, fishing is usually the sole source of income, whereas in the central districts additional incomes are obtained through agriculture and salt production.

In most parts of the Andhra Pradesh coast there are no proper feeder roads or transport facilities to market towns nearby.

Housing in fishing villages is similar to either that of most agricultural communities or to the crowded agglomerations in the outskirts of towns. This means a poor standard of living without basic amenities. Besides, the situation in fishing villages is aggravated by exposure to extreme climatic conditions (cyclones, floods). The scarcity of housing sites along the coast has led to congested settlements where fire is a constant threat.

Medical services in the villages are either inadequate or substandard. The standard of hygiene is low. Water is in severe short supply.

1/ Numbers between brackets refer to References in Annex 1

The literacy level among the fisherfolk is low, much lower in fact than the state average, which was 39% for men and 20% for women in 1981 (3). Facilities for primary education exist but enrolment is low. Generally, the children do not go to school as they begin to earn at an early age.

2.2 Orissa (4)

According to a census conducted by the Fisheries Department and BOBP in 1982/83, there are around 30 000 active fishermen in Orissa who earn their living wholly or partially from artisanal marine fishing. There are nearly 7 900 craft in Orissa of which around 700 are mechanized. Two thirds of the non-mechanized craft are kattumarams.

The census describes the infrastructure prevailing in the coastal villages as generally poor, except for those fishing communities located in or near town areas. Health services hardly exist and where available are rudimentary. Primary schools are common in these villages but secondary schools are lacking. Access roads are few and are often not motorable. Further there is a general lack of basic amenities like electricity and drinking water. The housing conditions in these villages are poor.

2.3 Tamil Nadu (5)

Tamil Nadu has a total marine fisherfolk population of about 396 000 who live in 422 fishing villages. The total number of active fishermen is estimated at 96 500.

The fishing fleet consists of about 46 000 craft of which 94% are non-mechanized. These are usually of the kattumaram type. There are nearly 3 000 mechanized fishing boats operating in this state. It has been, estimated that about half of the fishermen do not own either boats or gear, but quantitative information regarding ownership is not available.

The Government has provided housing facilities in a limited number of fishing villages but generally housing is a problem for fisherfolk. Most fishing villages lack potable water and electricity. There are a few primary schools in the villages, but hardly any secondary and higher secondary schools. There is a general lack of health facilities.

3. ROLE AND STATUS OF FISHERWOMEN

The status of fisherwomen has two components: status in the family and status in the community or society. Their status depends on the various tasks they perform in relation to the occupation of fishing. Traditionally, fishermen capture fish, the women engage in shore-based activities. The tasks performed by men are considered productive and therefore superior and indispensable, while those performed by women are considered insignificant and inferior. Household labour and other unpaid work done by fisherwomen is considered secondary and their economic activities are almost totally ignored. It is nevertheless a fact that the role played by fisherwomen is vital not only to their families but also to the village economy, as they are the main sellers and distributors of fish.

Important indicators of the role and status of fisherwomen are employment rate, literacy level, health and nutrition situation, the mortality and morbidity rates. The social organization of the community through the type of family, stereotyping of sex roles and division of labour, patterns of inheritance and their involvement in decision making at various levels are further indicators of the status of women (8).

Information pertaining to some of these indicators in the three states is given below.

3.1 Andhra Pradesh

The most important commercial activities of fisherwomen are fish drying, curing and marketing (6). Besides, women have sought jobs in increasing numbers in recently established processing plants in Visakhapatnam and East Godavari districts. In a survey conducted in Visakhapatnam district, AP, 61% of the women in the households studied contributed directly to the family income, mostly by marketing fish (9).

With regard to literacy, the same survey found that only two women from the households interviewed could read and write. This is much below the average female literacy rate in Andhra Pradesh, which was 20% in 1981 (3).

Concerning the social organization of the community by means of family type, the fisherfolk in Andhra Pradesh conform to the overall trend of reducing number of joint families: 62% of the households were nuclear families according to the survey. Living in a nuclear family will increase a woman's household work, but might also positively influence her decision-making power within the household because of the absence of a mother(-in-law).

With regard to decision-making at household level, two-thirds of the women interviewed explained that they were consulted or decided alone in matters pertaining to major family affairs. It is not common that women participate directly in decision-making concerning village affairs.

Under the aegis of Women and Child Welfare Department, a number of women cooperative societies have been established in Srikakulam district. The purpose of these cooperative societies is to organize women for hand braiding of fishing nets, supply of twine, etc. The societies get financial support from the Cooperative Central Bank, Srikakulam. From the limited information available it was noted that in each of the nine marine districts there is a Department of Women's Welfare. At present there are no fisheries officers with functions relating specially to women.

3.2 Orissa

In Orissa, fish drying, curing and marketing, net-making and shrimp processing are the most important economic activities in which women from small-scale fishing communities are engaged.

There are no programmes undertaken by the Government to widen or intensify the participation of women in fisheries activities, but there are officials at district/block/village level (e.g. Women Welfare Officers) who are concerned with the progress of women in general in rural areas. According to the Government, the chief constraints that impede greater involvement of women in the fishing industry are lack of education and training.

3.3 Tamil Nadu

As in the two states described earlier, fisherwomen are involved in fish drying, curing and marketing apart from the conventional responsibilities of cooking, feeding and child rearing.

According to a socio-economic study done in Tamil Nadu, the literacy level among fisherwomen is low (10).

Nuclear families and arranged marriages are common to all fishing villages in Tamil Nadu. Women are expected to marry before the age of 20.

Fisherwomen usually do not inherit property. However in those rare cases where the fisherwoman is an only child, she does inherit from her natal family. All family assets are regarded as the property of the male head of family and thus he controls the economic resources.

Decision-making at the village level is restricted to fishermen. Fisherwomen cannot assume any position of leadership in the village; they are expected to abide by the decisions made by male leaders of the village.

From the above, it can be concluded that women do not enjoy a status equal to that of men in the three states. They are not allowed to participate in decision-making. Fisherwomen's claim on production assets in the family does not equal that of men. They are socialized into accepting roles subordinate to men in the family and the village. Various factors contribute to the assignment to a secondary position to fisherwomen. These are discussed in the next section.

4. FACTORS THAT INFLUENCE THE ROLE AND STATUS OF FISHERWOMEN

There are individual and group factors influencing the role and status of fisherwomen. Individual factors include employment, age, marital status and education level. Among the group factors are: prevailing economy and technology, asset ownership pattern and socio-cultural and traditional values. Naturally both categories of factors are interlinked. The following elaborates especially on the group factors.

4.1 The Prevailing Economy and Technology (with reference to Annex 2)

When the subsistence economy was in vogue, fisherwomen bartered fish for paddy, vegetables and other essential articles (8). With the introduction of the money economy, an auction system for selling fish appeared. This system often affected the fishmarketing by women in a negative way. Male fish traders with cycles appeared and competed with the fisherwomen in the auctions. As cycle traders usually maintain higher profit margins, they are often able to outbid the fisherwomen in these auctions, leaving lesser quantities of fish, usually of lower value to be marketed by the women. The increasing demand for fish by the growing urban markets has further facilitated the position of the cycle traders.

Improved technology-like nylon twine, net fabricating machines and motorized craft - directly influenced the role and status of fisherwomen (8). The machines fabricating nylon nets displaced fisherwomen from their traditional activity of netmaking. Besides, the new nets and improved craft resulted in higher catches, which in turn encouraged male wholesalers to step into fishmarketing. This especially shows in the case of the prawn trade, where big traders have organized refrigerated vans for quick transport to the processing plants from where most of the prawns are exported (11).

4.2 Ownership of Assets (with reference to Annex 3)

The tasks of the fisherwomen also depend on the economic position of their families, which in turn is mainly determined by ownership of production assets. A fisherwoman from a family without any productive assets has to help earn or augment family income, often by fish marketing. A fisherwoman from a family that owns nets and kattumarams, however, is usually not directly involved in fish marketing. She hires other women to carry headloads of fish and travels to town and city markets where she supervises the selling.

In brief, tasks that entail labour for women are assigned a low status in the village. But indirect involvement in fish marketing, which calls only for handling money and supervising the hired workers, is accorded a higher status. Within the family however, both types of women enjoy a better status, because of their role as income-earners in the family (8).

4.3 Socio-cultural and Traditional Values

Tradition and socio-cultural factors greatly influence the role and status of fisherwomen. The myth of man's inborn superiority over the woman is reinforced by sex-based division of labour. Norms pertaining to family and marriage also assign a low status to women. The process of socialization keeps a check on the younger generation and makes them conform to roles prescribed by the community. Religion is involved to rationalize and sanctify tradition. An indication of the male bias in traditional values might be information from the Orissa study, that nearly three-fourths of the families preferred to have male children to female children.

Decision-making in the family is of two types: relating to home management and relating to occupation and production (8). Traditionally men take the latter decisions while women take those relating to home management. However, the woman's "power" to decide is illusory since the choices are few. For example, if a family with four children is given Rs 10 per day, at least 90% of the income has to be set apart for food.

Cultural norms prohibit women from taking part in decision-making at the village level. Politics and decision-making are considered the domain of men. The non-participation of women in decision-making at the village level is justified on intellectual and educational grounds - women are believed to be deficient in both.

To conclude, the place of women in society is uniquely determined by their dual roles in the family and in the economy. The balance between the two roles depends on a combination of economic, political, social and cultural factors; and change will invariably have corresponding effects on the living pattern, decision-making, tasks, etc., of women specifically and the community in general.

5. THE RELEVANCE OF THE FISHERWOMEN'S LIVING CONDITIONS TO THE NUTRITION SITUATION AND OBSERVED CHANGES OVER THE YEARS

It is imperative to discuss the relevance of the fisherwomen's situation to nutrition. Firstly, because they do most of the work required to feed the family. Secondly, although women are usually not involved in the production phase of fisheries, they play an important role on the economic side, through their involvement in the processing and marketing of the fish. Besides, outside the fishing communities, the fisherwomen provide an important nutrition impact by their fishmarketing to low-income consumers in the surrounding agricultural communities.

With the transition of barter to a cash economy, fewer fisherwomen are engaged in fishmarketing as they face increasing competition from new groups of traders. The nutrition situation was directly affected by this transition as few other sources of income are available to the fisherwomen. With a reduction of their marketing activities, women became more dependent on food stuffs available in the fishing communities. Thus, indirectly the economic process caused a change to more monotonous diets as local shops tend to sell only the less perishable vegetables in addition to cereals.

Those women who do remain in the fishmarketing business usually face longer working hours to get their necessary income as they are left with the lower qualities of fish because of the greater competition. This again affects the nutrition situation negatively: less time is available for child care and cooking.

Non-fishmarketing women will have more time for household tasks but this does not necessarily mean that there will be a better nutrition situation in these families. They might have more time to prepare better meals, but at the same time they might lack the finances to do so as they have become dependent on their husbands for money. Especially in families with higher incomes, women tend to leave fishmarketing as this will increase their status. Still, higher family incomes alone do not necessarily result in better diets because of this new dependency relation.

Lastly, though it has not been studied as such, it is expected that with fewer women involved in fishmarketing plus the drain of fish to the urban markets less fish is now available to (low income) consumers living in agricultural villages.

An effort to improve the overall role and status of fisherwomen has to be made, if far reaching nutritional changes are to reach the fishing community.

ANNEX 1

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ANNEX 2

Factors Influencing the Role and Status of Fisherwomen and their Impact on Nutrition

Economy and technology	Economic, social and political roles	Technology	Marketing system	Impact of women's role on nutrition
Subsistence Economy	Men: Actual fishing, owning fishing assets, maintenance of fishing craft and gear Women: Solely responsible for: fish processing, curing, drying. Fish marketing. Net making. Family type-mainly extended Men: Considered as head of the family. Final decision-makers in all matters. Women: Home makers: cooking, child care, nursing the sick, fuel collection,etc. Men: Political party members. Attend village meetings and participate in village decision making Women: Can vote in elections. Cannot attend village meetings and participate in village decision making.	Men: Use of traditional craft and gear Women: Involved in net making	- Predominantly barter system - No auction system - Women marketed the fish caught by male family members - Carried headloads to agricultural villages and did door-to-door vending - Men not involved in marketing	- As home makers women are fully responsible for obtaining food ingredients. They prepare and serve it to the family. - Control over home economics - Because of bartering system women were able to obtain a variety of food stuffs - Fisherwomen extend distribution of fish to rural areas by exchange for agricultural products

ANNEX 2
(continued)

Economy and technology	Economic, social and political roles	Technology	Marketing system	Impact of women's role on nutrition
Market Money Economy	Men: Actual fishing owning and maintaining fishing assets, whole sale fish/ prawn trade. Women: Fish processing etc. Fish marketing net making not common. Wage earners in prawn peeling/ processing factories. Family type-increasingly nuclear. Men: Still considered as head of the household with powers to decide in all matters. Women: Home makers with alied tasks. Men: Same as in subsistence economy. Women: Can vote in elections. Traditionally still cannot attend village meetings and partici-pate in community decision making. Women cooperatives have helped to an extent to develop leadership skills among the women.	Men: Most continue to use traditional craft and gear. New types of gear are manu-factured by machines. Nylon/ PA/PE/PP 1/twine is used for net making. Motorised craft has been introduced. Women: Women not involved fully in net making. Net making for wages. 1/ PA-Nylon Multifilament PE-Twine and Polyethylene PP-Polypropylene	- Auction system - Fish a commodity with money value - Marketing, not exclusively a women activity - Men have taken up wholesale fish/prawn trade - Women are losing out to male cycle traders - A number of women stop fishmarketing - Women do not confine their marketing to agricultural villages but also go to urban markets - With the decline in Barter system, women procure fewer variety of food stuffs and eat monotonous diets - Sea food processing, packing and freezing factories	- Marketing women have less time for household tasks, also because they have to spend longer time walking to the different markets. - Household tasks increase for women because of transition from extended to nuclear families. - Retailers have a low profit margin and most of the money is spent on household expenses. - Women not marketing are exclusively home makers, but depend on husband's male member's income. Her decision making power is reduced. - A bias towards meetings the urban demands for fish. - Overall trend is: poorer quality fish available in lesser quantity in rural areas-thereby negatively influencing the nutritional status.

ANNEX 3

Based on the Observed Economic and Technological Changes, Fisherwomen can be Categorized into the Following Groups:

1. Home makers
   - Families owning big assets
   - Families owning small assets
   - Families with no assets
2. Home makers cum marketing women (retailers)
3. Home makers cum marketing women (wholesalers)
4. Home makers cum marketing women (wage earners)
5. Home makers cum auction women
6. Home makers cum factory workers
7. Home makers cum other self-employed women
8. Destitute women without employment. (Employed destitutes are included in categories 2 to 7)

ANNEX 4

Administrative Map of Andhra Pradesh

Based upon Survey of India map with the permission of the Surveyor General of India. The territorial waters of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base line.

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ANNEX 5

Administrative Map of Orissa

ANNEX 6

Administrative Map of Tamil Nadu

APPENDIX 5

GCP/INT/417(NOR)

BAY OF BENGAL PROGRAMME
GCP/RAS/040/SWE

FOOD POLICY AND NUTRITION DIVISION
FAO, ROME

NUTRITION SURVEY IN FISHING COMMUNITIES OF TAMIL NADU, ANDHRA PRADESH AND ORISSA
May-December 1985

Paper presented at the Workshop
"Nutrition and Small-Scale Fisheries"
(3-5 March, 1986)

by

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Development of Small-Scale Fisheries in the Bay of Bengal,
Madras, India, March 1986

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Location of the fishing communities
in the survey

1. INTRODUCTION

This study was part of an FAO project "Nutrition and Fisherfolk in the Bay of Bengal Region". It was carried out through the Bay of Bengal Programme for the Development of Small-Scale Fisheries (BOBP) Headoffice Madras-Tamil Nadu. The project aims at the development of operational methods and approaches to intervene in solving nutrition problems of fisherfolk within the fisheries sector.

The BOBP was selected for the nutrition project because of its long established objectives for developing methods to improve the living conditions of fisherfolk and because of its accumulated experience in the field of socio-economics.

In early 1985 a "Desk Review and Resource Investigation" 1/ on the nutrition situation of fisherfolk along the east coast of India was carried out. The review revealed a great lack of information on this subject but indicated clearly a considerable level of malnutrition. Hence it was suggested that a nutrition survey should be carried out before any interventions could be undertaken to alleviate the nutritional problems of fisherfolk.

This report is prepared for the workshop "Nutrition and Small-Scale Fisheries", to present the salient findings of the nutrition survey.

2. OBJECTIVES

The overall survey objective was:

To assess the food and nutrition situation in six fishing communities of: Andhra Pradesh, Tamil Nadu and Orissa. In particular, the survey was conducted to:

1. investigate the relationship between some socio-economic factors and nutritional status of children under 5 years;

2. identify differences in nutritional status of children of different socio-economic groups and villages;

3. examine possible causes of nutrition problems.

3. THE SETTING

Located on the east coast of India, the states of Tamil Nadu, Andhra Pradesh and Orissa are included in the Bay of Bengal Programme Area. The coastal length extends for some 2 400 km with more than 1 100 fishing communities. Marine catches in these states account for about 24% of total marine landings in the country. Total population of these states is estimated at 128 million (1981) of which some 830 thousand are engaged in fishing.

The climate is warm with rainfall concentrated in two distinct monsoons: the Northeast monsoon: (October-December) and Southwest monsoon: (June/July-September). The onset, duration and intensity of the rains differ for each state. During the monsoons cyclones often hinder fishing.

The marine resources are mainly exploited by artisanal fishermen, who use predominantly traditional fishing technology with low levels of productivity. The majority of the traditional craft are kattumarams which can sail 30-35 km

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1/ Bhavani V., Food and Nutrition Situation of the Small-Scale Fisherfolk of the East Coast States of India. A desk review and resource investigation. Madras, BOBP, 1985

from shore and carry a crew of 1 to 5 persons. The fishing methods most widely used are small-mesh gillnetting, line-fishing and boat seining. Sardines, ribbon fish, silver bellies, small mackerel and shrimp are the main species caught. Most fishermen own some fishing assets. Those without a craft are employed as crew in return for a share of the catch (when they own a net or part of a net) or for cash wages.

Fish catches fluctuate over the year as does income, depending on the seasonal weather conditions. The bulk of the earnings is often realized during a few months in the year. Because of the fluctuations in return from fishing, fisherfolk often get indebted to moneylenders or traders, especially during the seasons when fish catches are low. In this period seasonal migration of fishermen and their households is common; most migrants are bonded to work as labourers for money lenders who own craft and gear.

Women are actively involved in fish curing, drying, marketing and netmaking, a few are engaged in other small private business.

Fishing communities have a low standard of living. They generally lack facilities such as clean drinking water, electricity, sanitation, education, medical care, communication, etc. Housing is generally of poor quality and this situation is aggravated by exposure to extreme climatic conditions such as cyclones and floods.

Feudal and exploitative relationships are common. Fishermen castes are among the lowest of the Hindu caste hierarchy, being economically and politically the weakest groups in the Indian society.

The staple food in the region is rice with fish as an important additional food. Cereals, one variety of dhal, unrefined groundnut oil and some roots and tubers are available in the local shops in all villages. Most families consume some fish almost every day but in many households fish is served mainly to the male members. A study in Tamil Nadu found that many families did not have enough to eat on some days because of low catches[1/].

Malaria, measles, respiratory tract infections, diarrhea and intestinal parasites are common diseases affecting children. According to a survey carried out in Andhra Pradesh child mortality and gastro-intestinal infection rates were higher among fisherfolk than among agricultural labourers[2/].

4. VILLAGE FEATURES

The following fishing villages were selected for the survey:

Pattipulam and two hamlets of Pulicat in Tamil Nadu, Ramanapalem and Pampathipetta in Andhra Pradesh and Talchua Island and Gouduwadasahi in Orissa (see Table 1).

1/ Drewes E., Three Fishing Villages in Tamil Nadu a socio-economic study with special reference to the role and status of women. Madras - BOBP, 1982

2/ Bhavani V., Food and Nutrition situation of the Small-Scale Fisherfolk of the East Coast States of India. A desk review and resource investigation. Madras - BOBP, 1985

TAMIL NADU

Pattipulam, located near the main road 40 km south of Madras, is easily accessible. The majority of the houses in this village are concrete, primarily because of a Government housing scheme.

Women are heavily engaged in fishmarketing, but have to walk about 6 km to the nearest market place.

Pattipulam has been exposed to a number of development programmes, including some of BOBP, and day care centres.

The Pulicat hamlets, located between the sea and backwaters, can be reached only by boat from the main village of Pulicat. Because of the recent establishment of one of the hamlets, the housing situation is extremely poor. An organized marketing system for export of prawns has been established at the main village. This has influenced the marketing of other fish and the inflow of consumer goods.

ANDHRA PRADESH

Ramanapalem, located along the main road has good connections with the nearest town and district headquarters. The houses, located in a rather crowded environment, with poor sanitary facilities, have mud walls and thatched roofs. Fishing activities are confined to creek fishing using small two-person boats (theppa's) and cast nets. Part of the village is involved in agriculture only, which also provides seasonal employment for the fishing community. Fish marketing seems to be an important source of income for both men and women.

Pampathipetta is more remote and the houses of mud walls and thatched roofs are surrounded by lush vegetation and cashew nut plantations.

Marine fishing is common, and the fish is mainly marketed by cycle traders to the nearest town, thus keeping women from this activity. During the lean season many families migrate to Orissa to work as labourers mainly in prawn fishing.

ORISSA

Talchua Island can be reached only by launch and is rather inaccessible without any transport facilities (the sample included 9 fishing communities).

The typical mud walled houses with thatched roofs are located in spacious clean surroundings with lush vegetation, but drinking water supplies are inadequate.

Some families own mechanized boats which provide substantial employment for those who do not own any fishing assets. The entire marine catch is sent to the Calcutta market through an organized marketing system, thus leaving hardly any marine fish in the locality. However fish for household consumption, mainly trash fish, is caught in the backwaters. Women are traditionally not engaged in fish marketing but in seasonal agricultural labouring.

Twice a week, there is a food market in the main village of Talchua, between 1-5 km walking distance from the sample communities.

Gouduwadasahi is a fishing community in a typical urban slum of Puri town.

Although the houses are concrete, the living conditions are extremely poor. Because of crowding, poor sanitation and water supply, infection and infestation rates are very high.

In the recent past competition has risen between trawlers owned by wealthy people from Andhra Pradesh, which destroy the gillnets of the Puri fishermen. This has resulted in clashes between the artisanal fishermen and the trawler owners.

Many women are engaged in fish marketing.

The urban influence of Puri with its daily market is reflected in the high inflow of consumer goods, convenience foods and liquor.

5. METHODOLOGY

The survey was conducted according to the following schedule:

1. Tamil Nadu: May-June, before the onset of the monsoon, toward the end of the fishing season.

2. Andhra Pradesh: September-October, at the beginning of the rains and the end of the fishing season.

3. Orissa: November-December, just after heavy rains and floods, when the prawn fishing season with accompanying high incomes has just started.

The villages in each state were selected in collaboration with the Department of Fisheries according to whether accessibility was poor or easy. Each consisted of approximately 100 households.

Information was collected at village and household level using standardized questionnaires. The village information was collected by interviews with key persons. Household information was obtained through interviews with family members and by weighing and measuring children under 60 months of age. Finally, a more in-depth approach was used on a representative subsample of households to examine their situation more closely.

Interviews were successfully completed in 461 households. In total 448 children below 5 years of age from 300 households were measured and weighed. In-depth interviews were held in 94 households.

Information provided by the households included: anthropometric measurements of children, demographic data, education and employment status of household members assets (fishing crafts and nets), material possessions, information on income and food expenditure, and the amount of cereals consumed per day. Each child under 5 was checked for obvious clinical symptoms of Vitamin-A and Vitamin-B deficiencies and for anaemia.

Using the data supplied by the questionnaires an analysis of the nutrition and socio-economic situation of the households was prepared. Anthropometric data were compared with international standards (NCHS/WHO) and children whose growth was critically below a certain cut off point of the standard were classified as malnourished[1/].

1/ Height below 90% of the standard height-for-age
Weight below 80% of the standard weight-for-height

6. FINDINGS

6.1 Children's Growth Performance

Nutritionally disadvantaged households have been identified by measuring children's growth performance, since it has been generally recognized that the growth status of children is a good indicator of the nutrition situation of the household.

From the data it is clear that the prevalence of malnutrition among the children in the fishing communities is very high. All indices show that the situation causes concern. Nearly half of the children surveyed were stunted[1/] (too short for their age) and almost one fifth were wasted[2/] (too thin for their height).

Stunting and wasting reflect different aspects of the malnutrition problem and both are indicators of deprivation in the households studied. Stunting, a low height for age, indicates a prolonged period of undernutrition (chronic), reaching back more than six months. Wasting, a very low weight for height, indicates a recent period of undernutrition such as may be caused by seasonal food shortages or recent bouts of infections. It is a more acute form of undernutrition.

The data in table 2 indicate that 46% of all the children surveyed were stunted and 18% were wasted. Stunting accumulated steadily from infancy to the age of 36 months, thereafter it appears to level off. The peak prevalence rate of wasting was found in the 7-12 months age group (32%) thereafter it begins to decline.

In addition the data revealed that girls are more likely to be malnourished than boys. Significantly more girls (21%) than boys (14%) were wasted and slightly more girls than boys were stunted.

The prevalence of stunting was similar in all three states, however the prevalence of wasting was significantly higher in Orissa than in Tamil Nadu or Andhra Pradesh.

When comparing the villages (Table 3), it appears that Pattipulam is relatively better off nutritionally. Significantly less children in this village suffered from malnutrition as compared to the other villages while Gouduwadasahi in Puri had the highest incidence of both stunting and wasting.

Comparison with the data collected by the National Nutrition Monitoring Bureau (NNMB) for each state on mean height and weight by age and sex shows that low height for age and low weight for age is more common among fisherfolk than among the average state population (Tables 4a, b, c).

Clinical evidence of vitamin deficiencies indicated that the prevalence rates in the fishing communities are comparable with those found in other rural populations in India.

1/ Stunted: below 90% of the 50th percentile of NCHS standard height-for-age

2/ Wasted: below 80% of the 50th percentile of NCHS standard weight-for-height

6.2 Characteristics of Nutritionally Disadvantaged Households

Further nutritional analysis concentrated on those households that contained at least one malnourished child (classified as nutritionally disadvantaged households). Reference to the households rather than the children was thought to be more useful, not only for policy making but also for high lighting differences between households.

Therefore the data from the sampled households which had children under 5 years of age (300 households), were examined separately from those which had no children.

The data indicated that more than two thirds of those households with children below 60 months of age had at least one malnourished child (Table 3). Pattipulam had significantly fewer households with malnourished children than the other villages.

Results (Table 5) from cross-tabulations of nutritional disadvantage with other variables revealed that socio-economic score[1/] and food expenditure were related to malnutrition.

- More nutritionally disadvantaged households were found among those which scored low than among those with medium and high socio-economic scores. This relationship was particularly evident for Orissa where it was statistically significant.
- Households which reported a low expenditure on food *per caput* were more frequently nutritionally disadvantaged than those which reported a higher expenditure. However only in Tamil Nadu was this relationship statistically significant.

Thus those households with low socio-economic scores and with low expenditure on food *per caput* were those most likely to be affected by malnutrition.

6.3 Socio-economic Characteristics of Total Sample

(a) Socio-economic score

More households in Andhra Pradesh (63%), and particularly in the village of Pampathipetta (78%) scored socio-economically low than in other states and villages. Pattipulam in Tamil Nadu was the village which had least households (35%), scoring socio-economically low (Table 3).

(b) Education level[2/]

The data show (Table 3) that the education level of the sample population over 5 years was very low with only 25% having received some schooling. In Pattipulam about half of the population was literate while in Gouduwadasahi, Puri, only about 10% was able to read and write. The literacy rate of the survey population was below their state average except for Pattipulam and Talchua which were comparable with or above the state average.

1/ Socio-economic score: households were classified into low and middle/high socio-economic groups on the basis of a variety of features relating to fishing assets, marketing, secondary income, social status and possessions.

2/ The literacy rate for India is 41%: 55% for males and 26% for females.
Tamil Nadu: 50%: 66% for males and 35% for females
Andhra Pradesh: 32%: 34% for males and 20% for females
Orissa: 39%: 56% for males and 21% for females (1981)

In addition to a high percentage of persons that never attended school (78%), it was found that females were even more disadvantaged; significantly more females than males in each state, never had any schooling. In Ramanapalem not one female was able to read or write whereas 25 percent of the males could. In the villages with the best schooling record, Pattipulam and Talchua 60-70% of the males reported some schooling whereas only 30% of the females did.

(c) Mortality

About 20% of the survey women who ever gave birth have had more than half of their children die. In Gouduwadasahi, Puri, it appears that 30% of women who ever gave birth lost half of their children. Only 43% of all the mothers had no deaths among their offspring.

(d) Cross-tabulations

The most distinctive relationships discovered in the analyses were those between food expenditure and such variables as income and calories intakes from cereals (Table 6).

Data from the analysis indicated that:

- as was expected income was directly related to socio-economic score;

- there existed a positive relation between households income and their expenditure on food. Significantly more households which reported a low food expenditure *per caput* were found among those who had a low income *per caput* .

- similarly a positive relation between the amount of money spent on food and the caloric intake from cereals per consumption unit was evident. Significantly more households that reported a low food expenditure *per caput* were found among those with low caloric intakes from cereals per consumption unit than among those with higher caloric intakes.

7. DISCUSSION OF FINDINGS

The quantitative survey data combined with the findings of the in-depth interviews, indicate that malnutrition in the villages studied is associated with the following contributing factors. However it should be noted that there is not one single factor contributing to child malnutrition but that many are interacting, each exacerbating the influence of others.

Poor feeding practices

The period when children's health and nutrition status is most in danger is between 3 months and until they can feed themselves, perhaps when about three years old. During this period there are several feeding practices which may have an influence on child malnutrition.

(a) Weaning

The largest concentration of wasted children is found in the 7-24 months age group. This is the period when children are weaned from their mother's breast and should be gradually accustomed to an adult diet. The observed late introduction of weaning foods, abrupt changes to a bulky and nutritionally diluted

diet and infrequent feedings during this period causes deficits in energy intake. This in combination with increased exposure to infection because of a poor hygienic environment can lead to rather rapid weight losses or slowing of weight gain among young children.

Stunting is seen more in older children who have adjusted to an adult diet but whose growth has been affected by a prolonged period of inadequate food intake and illness.

(b) Sex biased feeding

The significantly higher prevalence of malnutrition among girls than among boys is likely to be a reflection of the preferential treatment given to boys.

(c) Pregnancy

The high prevalence of malnutrition among children below 7 months of age may also be partly attributed to low birth weights. It is known from other studies that poor nutritional status and inadequate food intake by the mother during pregnancy is an important cause of low birth weight.

(d) Food availability

A limited variety of food is available in the fishing communities, which is reflected in the monotonous diets. This may partly contribute to the prevalence of the vitamin deficiencies found. In communities where there is a high inflow of consumer goods, changes in food habits contributing to malnutrition may take place.

Seasonality

The consequences of malnutrition may be compounded when seasonal peaks of infectious and parasitic diseases coincide with times of food shortage.

A higher prevalence of wasting in Orissa than in the other states, while stunting was the same, is probably attributable to seasonal effects. In Orissa in the period just preceding the survey, the environment was heavily contaminated because of the rains and floods, and income and food supply was low because of low catches.

It is likely that the incidence of malnutrition (wasting) varies with the seasonal fishing cycle. Wasting is probably worse during the monsoons when food and money are in short supply because of low catches and the incidence of infectious diseases is also high.

Domestic Environment

Domestic environmental factors such as crowded housing, poor sanitation and water supply influence the growth of children in ways that often lead to malnutrition, because high infection and infestation rates, diarrhea, parasites and fever affect the ability to absorb or utilize food.

The most prevalent health problems reported among children were diarrhea and parasitic and respiratory infections which are associated with environmental factors.

The living conditions and health environment of the fishing communities were substandard; only a fraction of the households had their own wells and almost none had toilet facilities. All of these may have contributed to the alarmingly high incidence of wasting, particularly in Gouduwadasahi, Puri, where the environment was extremely poor.

Literacy Rate

The literacy rate among fisherfolk, and particularly among their women, was very low, lower than the average for each state. Women's concern and attitudes on child care and use of services such as immunisation; health care, family planning, etc., is likely to be influenced by education. It should be noted that those villages with the highest female literacy rate had also the least stunted children.

Despite the poor record of schooling in the sample, a higher percentage of the younger age groups in each state reported having had some schooling as compared to the older age groups. This finding suggests a positive development in recent years in which schooling has become more accessible and acceptable.

Socio-economic Condition

Although fishing communities are generally poor when compared to other rural groups in India, there were considerable inequalities between households within the fishing communities regarding ownership of fishing assets, material possessions, etc.

From the results it appears that the socio-economic condition of a household may have an impact on the nutritional status of its children. Those households more likely to be affected by malnutrition are those with lower socio-economic scores. These were also more likely to have a lower income and hence lower food expenditure *per caput* than those that scored medium or high. Calorie intake from cereals was found to increase with increasing food expenditure, which suggests that even in households where there is relatively more money available for food, the demand for the most basic item of the diet is not yet satisfied.

Thus fishermen who do not own any fishing assets may be at greater nutritional risk. Low and fluctuating incomes limit their consumption of food, particularly cereals (rice) the main source of energy in their diet. Although higher incomes do not automatically lead to better nutrition, in this case it is expected that any increase in income would be likely to improve their nutritional status.

Differences Between Communities

Although the nutrition situation was very bad in all the communities, some were worse off than others. Differences between the communities were also observed regarding infrastructure, community services and communication, all of which may have had an influence on the nutrition situation.

Pattipulam has benefitted more than any of the other communities from a number of development programmes including the BOBP and there were also more community services and facilities available in this village. Gouduwadasahi, on the other hand, being a typical urban slum with an extremely poor environment has not benefitted from any development programme so far. Some of these factors may have contributed to the differences found in the incidence of malnutrition in Pattipulam and in Gouduwadasahi in Puri.

8. CONCLUSIONS

Malnutrition is a combination of many factors and there are no simple answer as to its causes. Many of these factors are closely linked to the inequality of access to resources, poverty or social discrimination and unequal distribution of commodities and services within and between geographical areas and population groups.

To make sure that those most at risk of malnutrition are reached, project activities and components to increase fish catches and income should be designed in such a way that they will benefit the poorest groups, those with the least assets. Any possible adverse effects should be avoided (such as introduction of competing fishing technologies).

In addition it is obvious that the full potential of fisheries development projects to improve nutrition can only be realized if increases in fish catches and income are accompanied by improvements in such environmental factors as water supply, sanitation, housing and community services.

Based on the findings of this study it can be concluded that a combination of complementary policies is necessary rather than one single policy by itself to tackle the nutrition problem.

It is hoped that this workshop will leave us with a set of recommendations on policies and strategies to alleviate malnutrition in fishing communities.

ANNEX

Definitions Used in the Study:

Household	Family members living under one roof and sharing the food from the same kitchen.
Food expenditure	The total amount spent on various items of food on the previous day.
Income	Total household cash income was taken as average of the week (all working members included).
Calorie intake	Based on the assumption that there is a one to one relationship between cereal intake and calorie consumption, the quantity of cereals consumed by the entire family was used in arriving at the calorie consumption per unit.
Socio-Economic Score	The combination of ownership of assets like boats and nets, marketing by women, social status, income from subsidiary activities and material possession.

Table 1

Village features

	Pattipulam	Pulicat	Ramanapalem	Pampathipetta	Talchua	Puri
Number of households	62	98	48	89	80	84
Accessibility to						
Town[1]	good	poor	good	poor	poor	good
Health services[2]	good	limited	limited	poor	poor	limited
Primary school	yes	yes	yes	yes	yes	yes
Ration shop	yes	yes	yes	yes	yes	yes
Domestic Environment						
Housing[3]	good	poor	reasonable	reasonable	reasonable	crowded
Water supply[4]	good	poor	poor	poor	poor	poor
Surroundings	clean spacious	crowded	crowded	crowded	clean spacious	very dirty crowded
Feeding Programme	yes	no	no	no	no	no
Immunisation	yes	no	no	no	no	no
Development Programme	yes	no	no	no	no	no

1/ good: frequent bus services to town

2/ good: private and Government health services available
limited: visited by health personnel but not covered for all Health Services
poor: inaccessibility to curative health services in times of emergency

3/ good: "Pucca" houses with space in between
reasonable: thatched roof and mud walls with space in between
poor: thatched roof and thatched walls

4/ good: ratio of handpumps to families high
poor: ratio of handpumps to families low and partly water from open wells

Table 2

Nutritional status of the survey children (0-60 months) by age

Age Group (months)	Sample size	Stunted 1/ % <90% HA	Wasted 2/ % < 80% WH
0 - 6	36	8	14
7 - 12	58	15	32
13 - 24	90	52	26
25 - 36	103	67	19
36 - 60	161	49	8
Total sample	448	46	18
Total Boys	220	44	14
Total Girls	228	49	21 *

1/ Stunted Height less than 90% of expected height-for-age

2/ Wasted Weight less than 80% of expected weight-for-height

* Significant difference

Table 3

Nutrition Status of the population and related characteristics in the Fishing communities

Characteristics	Tamil Nadu			Andhra Pradesh		Orissa	
	Total	Pattipulam	Pulicat	Pampathipetta	Ramanapalem	Talchua	Puri
No. Households studied	461	62	98	89	48	80	84
No. Households with children	300	36	60	54	28	70	52
No. of children	448	54	91	81	37	103	82
Children's Nutrition Status							
Percentage stunted	46	37	47	46	51	40	57
Percentage wasted	18	4*	19	10	19	23*	26*
Percentage nutritionally disadvantaged households	69	47**	70	67	71	71	81
Households socio-economic score							
Percentage households with low SES	53	35	39	78	35	56	64
Education level							
Percentage male literacy rate	39***	68***	40***	18***	25***	58***	19***
Percentage female literacy rate	16***	29***	13***	8***	-***	30***	5***
Percentage total literacy rate	27	48	26	13	12	45	11

* Significant difference between the villages
** Significantly different from the other villages
*** Significant difference between males and females

Table 4a

Comparison of mean heights and weights by age and sex for Pattipulam, Pulicat and Tamil Nadu

Age Group (months)	HEIGHTS				WEIGHT			
	Mean (MALE)	S.D.	Mean (FEMALE)	S.D.	Mean (MALE)	S.D.	Mean (FEMALE)	S.D.
0 -12								
Pattipulam	68.4	4.4	60.9	4.4	7.4	1.2	5.2	1.6
Pulicat	63.3	4.7	62.5	6.6	6.5	1.5	5.0	1.1
Tamil Nadu	71.0	3.9	69.1	8.6	9.0	3.4	9.0	8.7
13-24								
Pattipulam	79.3	3.1	75.4	2.9	9.7	1.1	8.9	1.7
Pulicat	76.3	3.2	71.3	3.5	8.7	0.9	7.5	0.9
Tamil Nadu	79.5	4.1	78.1	5.3	9.4	0.6	10.65	1.8
25-36								
Pattipulam	83.0	4.1	84.9	4.5	11.4	1.6	10.8	1.3
Pulicat	80.2	8.8	79.9	7.0	10.4	1.6	8.7	1.1
Tamil Nadu	86.8	5.5	84.5	6.2	11.6	1.8	10.5	1.8
37-48								
Pattipulam	92.3	3.0	92.0	2.6	13.5	0.8	13.1	1.1
Pulicat	91.2	7.7	92.2	9.5	12.5	1.5	11.8	1.1
Tamil Nadu	93.3	5.5	91.3	6.8	12.6	0.8	11.9	1.8
49-60								
Pattipulam	100.0	2.8	95.9	5.9	14.4	0.5	13.9	1.5
Pulicat	96.9	3.6	98.7	10.1	13.5	1.1	12.1	1.2
Tamil Nadu	100.8	4.7	98.5	6.8	14.0	0.8	13.92	2.1

NNB Data, 1980

S.D - Standard Deviation

Table 4b

Comparison of mean heights and weights by age and sex for Ramanapalem, Pampathipetta and Andhra Pradesh

Age Groups (months)	HEIGHTS				WEIGHT			
	Mean (MALE)	S.D.	Mean (FEMALE)	S.D.	Mean (MALE)	S.D.	Mean (FEMALE)	S.D.
0-12								
Pampathipetta	64.1	7.5	6.30	5.5	6.1	1.6	5.7	1.2
Ramanapalem	64.0	4.4	67.5	0.0	5.8	0.8	7.5	-
Andhra Pradesh	74.5	3.9	72.6	4.1	8.4	0.7	7.8	1.4
13-24								
Pampathipetta	71.2	4.0	75.8	2.0	7.2	0.6	7.9	0.5
Ramanapalem	77.7	2.8	73.5	2.9	9.7	1.2	8.2	0.5
Andhra Pradesh	82.4	4.5	-	-	9.9	0.8	-	-
25-36								
Pampathipetta	80.7	2.8	80.7	3.9	10.1	1.2	10.0	1.3
Ramanapalem	81.0	6.3	80.6	4.0	10.0	1.0	9.0	0.8
Andhra Pradesh	88.2	4.1	87.2	6.6	11.2	0.7	10.9	1.6
37-48								
Pampathipetta	90.6	4.8	86.5	3.0	12.3	1.3	11.1	1.5
Ramanapalem	88.5	2.9	85.0	6.9	11.2	0.1	12.0	1.6
Andhra Pradesh	95.0	5.8	94.0	4.8	12.7	0.7	12.5	1.6
49-60								
Pampathipetta	95.9	3.0	96.6	2.5	13.5	1.1	13.2	0.8
Ramanapalem	97.1	1.8	97.9	0.8	13.6	0.4	13.6	1.2
Andhra Pradesh	102.5	5.3	101.0	5.4	14.6	0.7	13.9	1.7

NNMB Data, 1980

Table 4c

Comparison of mean heights and weights by age and sex for Talchua, Goudawadasahi-Puri and Orissa

Age Groups (months)	HEIGHTS				WEIGHT			
	Mean (MALE)	S.D.	Mean (FEMALE)	S.D.	Mean (MALE)	S.D.	Mean (FEMALE)	S.D.
0-12								
Talchua	61.5	8.9	64.2	3.4	4.9	1.7	5.5	0.9
Puri	67.3.	3.0	63.9	6.2	6.4	1.2	5.7	1.6
Orissa	73.2	6.7	72.6	9.7	11.5	10.3	7.7	1.9
13-24								
Talchua	76.5	2.2	74.2	4.4	8.3	1.3	7.8	1.0
Puri	73.5	5.7	73.8	4.7	7.7	1.8	7.1	1.3
Orissa	81.4	5.4	76.2	5.3	9.7	0.9	8.4	2.7
25-36								
Talchua	82.2	5.2	81.1	5.3	9.9	1.2	9.3	1.2
Puri	81.3	4.6	81.5	4.0	10.1	1.5	9.8	1.6
Orissa	86.8	7.9	86.8	6.0	10.8	1.5	10.6	1.7
37-48								
Talchua	89.8	4.4	90.2	5.5	11.5	1.5	11.2	1.7
Puri	89.1	8.7	91.5	4.9	12.5	1.4	12.6	1.5
Orissa	92.0	6.4	92.4	6.6	11.8	1.1	11.67	2.0
49-60								
Talchua	95.1	5.5	97.2	4.0	13.0	1.6	12.9	1.1
Puri	91.4	6.6	94.2	8.0	12.5	2.3	12.2	1.9
Orissa	98.7	7.7	98.6	7.5	13.7	1.3	13.3	2.5

NNMB Data, 1980

Table 5

Cross-tabulation of nutritionally disadvantaged households with socio-economic score and food expenditure by state

Variable	Percentage of nutritionally disadvantaged households[1/]			
	Total sample	Tamil Nadu	Andhra Pradesh	Orissa
Socio-economic score				
Low	75	62	74	81*
Medium/high	63	61	61	67*
Food Expenditure *per caput*				
Less than 3 Rs	72	71**	67	76
More than 3 Rs	63	55**	100 (4)	72

1/ Households that contained at least one malnourished child

* Significant difference between households with low and medium/high socio-economic score

** Significant difference between households that spent less than Rs 3 and more than Rs 3 *per caput*

Table 6

Cross-tabulation of households with low food expenditure with income and caloric intakes by state

Variable	Percentage of households with low food expenditure/*caput* 1/			
	Total sample	Tamil Nadu	Andhra Pradesh	Orissa
Income *per caput*				
≤ Rs 3	87*	66*	100*	95*
> Rs 3	47*	36*	63*	46*
Caloric intake from cereals per consumption unit				
< 1 500	90**	83**	93**	93**
1 500 - 1 999	73	58	83	73
≥ 2 000	45	28	71	53

1/ Those households that spend less than Rs 3 *per caput* on food

* Significant difference between households that spent less than Rs 3 and those that spent more than Rs 3 *per caput*

** Significant difference between households with different categories of calorie intake

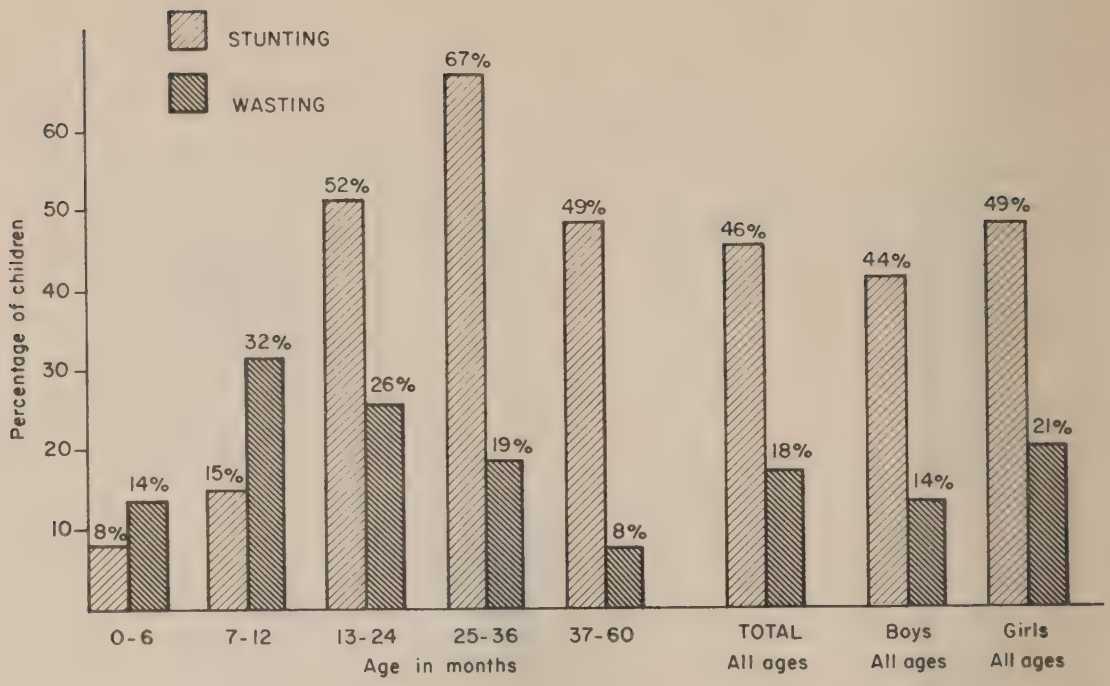

FIG. 1 PREVALENCE OF MALNUTRITION IN SURVEY CHILDREN 0-60 MONTHS OLD BY AGE GROUP

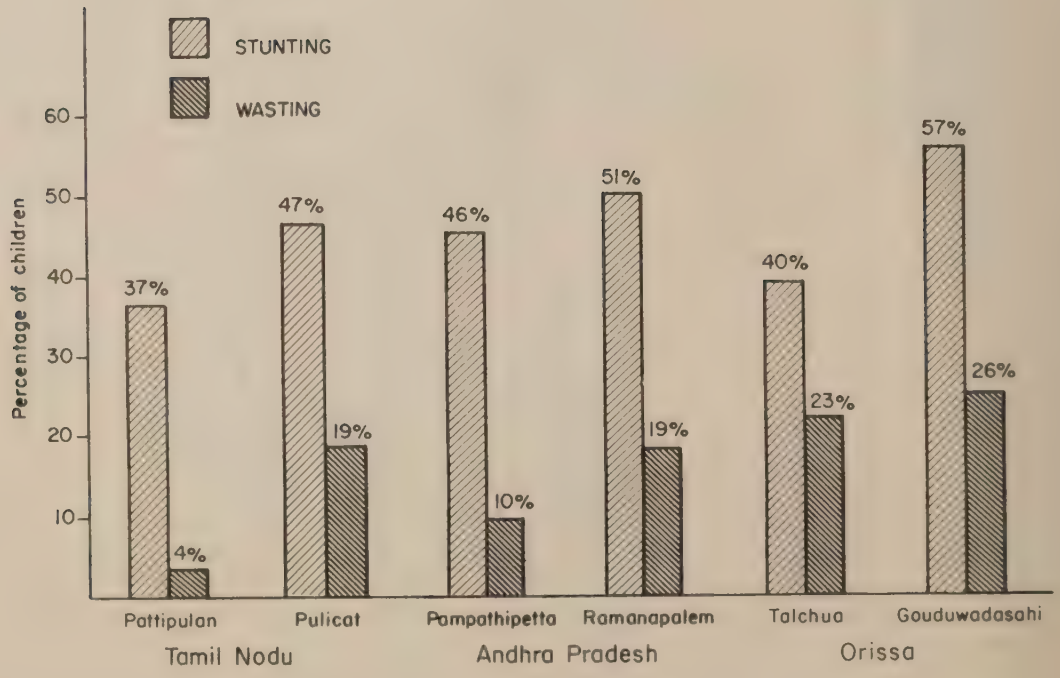

FIG. 2 PREVALENCE OF MALNUTRITION IN CHILDREN (0-60 MONTHS) BY VILLAGE

APPENDIX 6

Summary of Background Paper

"Incorporating Nutrition into Fisheries Projects"

E. Campbell-Asselbergs 1/

The purpose of the paper was to examine those factors and situations which need consideration and redressal if the potential of fisheries for improving nutrition is to be realized. It presented an approach for linking nutrition concerns directly with the more obvious production concerns of fisheries development projects. While fisheries development has improved nutrition in many cases, FAO firmly believes that the addition of a nutrition orientation to appropriate fisheries projects can increase this impact substantially.

The paper is addressed to development personnel concerned with projects in the fisheries sector and in fishing communities. It is relevant to a number of professional groups - fisheries experts, nutritionists, sociologists, anthropologists, project planners, economists and implementors. The information provided can be applied to local, regional, national, and international work but is particularly focussed on investment projects.

THE BASIS OF THE CONCERN

The recent famines in Africa have re-alerted the world to the inadequacies and devastating effects of its present food production and distribution system. Estimates of the number of undernourished people world-wide are in the range of 500 million, and recent trends suggest that this number is increasing. It is probably correct to assume that some 25 million of these are dependent on the fisheries sector. For them, fisheries offers the most important avenue for improving their level of living, their nutrition and their health. The food consumption of other poor and malnourished groups can also be considerably improved through the addition of fish to their diets.

The predominate cause of malnutrition is deficits in the quantity and the quality of food eaten. Other common causes are infectious and gastro-intestinal diseases and parasitic infestations. Underlying these are a whole array of economic, social and environmental conditions which often operate to the particular disadvantage of the poor, the illiterate and the sick.

Undernutrition and malnutrition are invariably associated with poverty and disadvantagedness. To obtain food, one must either produce it or have the cash to buy it. Thus, increasingly development nutritionists are becoming concerned with factors that determine access to the means of production, with wages, producer prices, purchasing power and with the marketing aspects of food.

In the developing world, the frequency and severity of malnutrition vary considerably even within a year. When the fishing or agricultural season is closed, when food stores are depleted and when money is scarce, prevalence is high. Environmental conditions may also be at their lowest during the same season making the possibility of contracting deseases great. Young children

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1/ Background paper prepared for the workshop by Dr E. Campbell-Asselbergs, Food Policy and Nutrition Division - FAO, Rome

and pregnant and lactating women are particularly vulnerable. So are the aged. For adults, frequent illness, apathy and listlessness lead to absenteeism and low productivity. This, coupled with the primitive tools and techniques practiced by them, can explain much of their low output.

Development efforts need to chip away at these problems by analysing the constraints under which poor rural and urban families operate. Activities appropriate to local conditions must open up opportunities to produce food and fish, increase employment and wages and improve the marketed supply of food.

IMPROVING NUTRITION THROUGH FISHERIES

Nutrition is most often perceived as a health discipline. Indeed, many of the activities nutritionists initiate and operate are in that sector. Yet, a very limited experience in the poor regions of the developing world brings a realization that little nutrition improvement can be realized if neither more food nor more money is made available to the malnourished and if the sanitary environment remains untouched.

In recent years, therefore, nutritionists in international agencies, research institutes and governments are encouraging their own and several other disciplines to work together to bring food consumption and nutrition objectives up-front with the economic and productive goals that drive much of the investment in developing countries.

While in the past the "trickle-down" theory of development held that sound investment in economic growth would eventually reach all levels of society, experience has shown that without special efforts to ensure equity, benefits accrue to the richer and more powerful segments of society - those that need assistance least. In the fisheries sector, small-scale operators and subsistance fisherfolk are often squeezed out by capital intensive undertakings; fishmeal plants successfully compete with humans for low cost species and by-catch; local markets are sacrificed for foreign trade. Certainly equity and better food consumption by the undernourished are not served in such cases.

The benefits of linking nutrition to fisheries are not to be gained only by producers. Consumers too stand to gain. The availability of fish at low cost could be of major nutritional importance to them.

Fish as Food

The food consumption value of fish is the more obvious way to argue that fisheries can be instrumental in alleviating malnutrition. As a food, fish provides an excellent balance of nutrients, a feature of particular relevance to the nutritional well-being of young children and pregnant and lactating mothers. It is easily digested and quick to cook, an important feature in those areas of world where fuel is scarce. As well, it has a distinctive flavour that is well appreciated by populations familiar with it.

Fresh fish is usually favoured over any processed product but, the perishability of fresh fish poses particular problems to storage. The traditional methods for preserving fish - drying, salting, smoking and fermenting can prevent the deterioration that would otherwise take place. As well, these strong flavoured products bring advantage from a nutrition perspective by increasing the palatability and hence the consumption of the often-bland local diet. However, there is room for practical improvements in virtually all traditional

processing practices so that waste is further reduced. Modern food processing holds particular promise for processing large volumes of fish. Relatively inexpensive techniques yield products low in volume and with a long shelf life.

One important source of fish that is unfortunately lost to human consumption is by-catch. Methods need to be devised to inexpensively treat, retain and use it for human consumption rather than for fish meal and fertilizer. Aquaculture and fish farming also hold promise for increased supply and availability. The species cultivated are important; locally acceptable inexpensive species are preferable since species that can call in a good price may be sold for cash, rather than consumed by the local poor.

The introduction of fish as a new food, or the promotion of new species to poor and malnourished consumers requires imaginative approaches. While market price will be an overriding concern, the location of markets, the sensitivity to local customs and traditions, particularly those relating to food, are very important. Fish promotion can be linked with nutrition education, preparation demonstrations and feeding programmes to the advantage of all.

Fish as Income

The "nutrition-in-fisheries" approach also focuses on those aspects of fisheries that can provide increased incomes to poor and malnourished fisherfolk. It is not just an increase in total fish production that it encouraged, it is a better distribution of the wealth so provided. Proceeds from the sale of fish and fish products, and from the various types of employment in the sector, need to be expanded and shared more equitably.

Fisheries development projects are concerned with a wide range of technical and productive problems - resources, capture, management, equipment, landing facilities, aquaculture, processing, storage and marketing. In recent years, emphasis has been placed on small scale fisheries, under-exploited species, the role of women and social marketing. All of these present opportunities to improve the economic and overall well-being of fisherfolk.

Problems in fishing villages are not related solely to fishing. Improvements in water supply, health and social services, education, credit and transport are also needed.

Many fishing communities would be more viable nutritionally and economically if these features and at times agriculture and forestry pursuits were combined with fisheries.

Promoting Nutrition in Fisheries

The starting point for alleviating malnutrition through fisheries is advocacy for the cause by and among nutritionists and fisheries personnel. This will entail, among other things, the building up of an understanding of closely related concerns. Nutritionists can encourage this by preparing information on linkages between social and economic poverty, malnutrition, fish production and consumption and by investigating the locale and numbers of people with nutrient deficits, their food habits, food preparation methods, their likely response to fish and new fish products and their purchasing power.

Fisheries personnel can identify the potential of the sector for producing more fish and more income. They have the skills and techniques to pass on to

fishermen so this potential is achieved. They are also aware of the extremely poor conditions in which many fisherfolk live and the difficulties that must be overcome if small scale fishing is to provide a decent living.

The value of combining the strenghts of these two disciplines for the benefit of the malnourished is evident.

PLANNING PROJECTS

Certain types of fisheries projects lend themselves to an easier incorporation of nutrition concerns than do others.

Projects deserving of attention are those which have the potential to:

(a) provide cheap fish or fish products to urban and rural markets, where poor and malnourished people obtain their food;

(b) help fishing communities and fishing families improve their productivity and standard of living. The multi-disciplinary approach of small-scale fisheries projects is most appropriate to the "nutrition-in-fisheries" theme.

The incorporation of nutrition into such projects should begin as a desk review during the project's Pre-identification phase.

This review is a first attempt to link nutrition concerns with the activities and benefits that could be included in the project. It entails a bringing together of readily available information relevant to the food consumption and nutrition situation of people who are potential beneficiaries of the productive, or the consumptive outcomes of the project. A minimum of carefully selected facts that define whether a nutrition problem exists, the nature, extent and location of the problem and the main factors that contribute to it are prepared in a manner that non-nutritionists can use in deliberations about the overall purpose and shape of the project.

During the second stage of the planning of the project, Identification, an initial assessment of the food consumption and nutrition problems of those foreseen to be direct or indirect participants in the project and proposals for action to alleviate these problems are prepared and deliberated. Activities that will increase food supply, purchasing power or relieve other constraints affecting the worst-off groups, are needed. Depending ont the nature of the problems, non-nutritional interventions may be as effective in achieving this as traditional nutrition ones. The economic, technical and social nature of the underlying causes of malnutrition will mean that the nutritionist must seek advice from other experts about non-nutritional activities. Conversely, the nutritionist must anticipate and discuss the likely impact on food consumption and nutrition of activities proposed by other disciplines.

Project Preparation is the most demanding of the three planning phases for a project. It entails extensive follow-up on all aspects of the project plan, the feasibility of proposed activities, the quantification of inputs and outputs and an estimation of project impact on a variety of technical, economic and social issues.

During this final work-up the nutrition planner must translate proposed approaches into viable practical solutions for nutrition problems. Preliminary assessments must be verified and the validity and effectiveness of activities substantiated. The nutritionist acts as an advocate for the hungry and

malnourished - constantly analysing how the project and its various elements will impact on them. Proposing alternatives for activities with negative impacts, and promoting those which will improve the situation of the poor and malnourished are very important aspects of the nutritionist's contribution to the final development of the project.

The selection and incorporation of indicators of food and nutrition problems into the project's monitoring and evaluation system are also important. These can ensure that the project is operated in a manner that achieves its short and long term objectives.

The potential of this nutrition-in-fisheries approach for alleviating malnutrition in fishing communities and among poor consumers is great. It needs to be promulgated in and by fisheries departments, nutrition institutes and international agencies.

APPENDIX 7

National Fishery Policy and Alleviation of Malnutrition in the Philippines and Thailand

G. Kent

(FAO Fisheries Circular, N° 777, 31 p., 1984)

ABSTRACT

Fishery policy is generally geared to production for the maximization of revenues, increasing foreign exchange earnings, generating employment opportunities, etc. The market orientation is dominant. Some apparently non-economic (economically inefficient) policies are instituted by governments, for instance, to protect the interests of small-scale fishing community. Given the lack of organization of consumers in relation to this sector, management is guided much more by producer interests than by consumer interests.

Nutrition programmes, in contrast, generally are viewed as welfare programmes involving transfer payments to the poor, operating on a non-market basis. They are seen as drains on Government revenues, and thus as something to be minimized. Although it may be acknowledged that there could be some return on "investment" in human capital, that return is likely to be regarded as small and uncertain.

Programmes for using fishery products for alleviating malnutrition can be divided into three major types: those which focus on self-provisioning, those which use conventional marketing channels, and those which are based on direct feeding programmes.

The policies adopted can have a considerable impact on nutrition. For example, while national fisheries policies generally are geared to maximizing production (within ecological limits) and thus increasing overall supplies, it makes a difference whether production and processing favour products consumed by the poor or whether they favour products consumed by the middle and upper classes.

Some countries have a policy of increasing self-reliance in fish, interpreted as increasing production, reducing imports, and increasing exports. This results in a more favourable balance of trade in terms of increasing foreign exchange reserves. However, if production is not increased significantly, it also reduces the supply of fish available for domestic consumption.

The foreign exchange that is earned by exports theoretically could be used to purchase cheaper foods for domestic consumption, but often it is not used that way. Thus there are genuine tensions between the need to earn foreign exchange through exports and the need to maintain domestic supplies to serve local nutritional needs, especially the needs of the poor.

Programmes for increasing the use of fisheries products for the alleviation of malnutrition should be executed through close cooperation between the fisheries and the nutrition agencies of Government. It would be preferable to adapt and strengthen existing programmes rather than to establish new ones.

Action at a national level is essential if any lasting impact is to be made. This implies a willingness of governments to adjust policies and a genuine commitment to ensuring adequate nutrition for all sectors of the population. Policy and programme initiatives which might be taken are listed in the text and include the following:

- Review national fisheries policies to assess their impacts on nutrition, and re-orient those policies to help alleviate malnutrition where feasible.

- Develop and use methods for assessing the nutritional impact of fisheries development projects.

- Provide increased research, extension and other support for self-provisioning fishing activities by the poor, including both capture and culture.

- Develop the production, processing and marketing of low-cost fisheries products where there is a reason to expect that they will be consumed by the poor.

- Develop nutrition education programmes for home-makers to emphasize practical aspects of cooking and preservation of both traditional and novel fisheries products.

- Develop non-market means of distributing fisheries products, including social marketing, subsidies, supplemental feeding programmes and institutional feeding programmes.

- Review the possibilities for using fisheries products in both international and domestic food aid programmes.

The Philippines and Thailand, both have well developed fisheries governed in general by the policies outlined above. At the same time, there is widespread protein-energy malnutrition, vitamin A deficiency, iron deficiency, and iodine deficiency in these countries. Fisheries products can be used to respond to these problems. Cost may at times be a significant impediment, but often the more significant issue is the need for appropriate policies and programmes which would assure that suitable products are delivered where they are needed.

Both countries are now planning integrated national programmes to implement the FAO "Action Programme on the Promotion of Fisheries in the Alleviation of Undernutrition". The following elements have been suggested for incorporation into the programme for the Philippines:

- aquaculture village development for integrated agriculture/aquaculture;

- tilapia ponds in elementary schools for self-provisioning;

- stocking public waters;

- nutrition and the role of women in fishing villages;

- fish protein concentrate for use in school feeding.

In Thailand, elements developed from the following list will be incorporated in the Sixth National Development Plan:

- including fishery products in supplementary feeding packs;
- fish ponds for rural communities;
- fish for the urban poor;
- institutional feeding programmes using fish;
- economics of improved utilization;
- education and training for consumers and industry;
- assessment of nutritional status of fish workers.

ANNEX 8

Summary of Paper on
"Research Needed to Support the Use of Fisheries to Ameliorate Malnutrition"

E. Campbell-Asselbergs 1/

Applied, practical, on-site research is encouraged as the means of building up the background of data that will be useful. Sociological and anthropological tools, the incorporation of concerns specific to fish as a food and fishing as a livelihood as well as nutrition assessments, appropriate to field studies, are key features of the work that needs to be undertaken. This research must aim at (1) sorting out the complex relationships that bring about good or poor nutrition among fisherfolk and poor urban and rural consumers, and (2) developing and testing ways and means of removing the constraints that cause malnutrition among them.

Assessment of the presence and nature of nutrition problems is basic to this research. However, attention needs to be concentrated on using well tested indicators and approaches in new situations, namely to investigate the links between poor nutrition and the various factors which influence life in fishing communities or which dictate the food purchasing practices of the poor.

Fisherfolk

A countless array of occupational, environmental, social and economic factors influence what foods a fishing family gets, how it uses and distributes this food and how health and disease are responded to. Studies which will allow the identification, in an operationally useful way, of which types of fishing households have most problems with their food and nutrition, are needed. Action then can be directed preferentially to them. Researching this will involve relating the nutrition situation of these families to their economic conditions, their access to goods and services, the local social structure, the health and environmental situation and their demographic structure.

Sorting of families into sub-groups will not only support the identity of which types have most nutrition problems but will also provide information useful for selecting those who should directly participate in or benefit from development activities. Those characteristics which prove themselves to be associated with underconsumption of food, with poor growth among children and with frequent health problems, identify important target groups.

The following economic variables are examples of those which could be used to sort out which types of marine fishing families have nutrition problems:

(1) available species, size and distribution of catch,

(2) ownership of boats and gear,

(3) types of frequency of employment and wages,

1/ Background paper prepared for the workshop by Dr E. Campbell-Asselbergs, Food Policy and Nutrition Division - FAO, Rome

(4) landing facilities and prices,

(5) costs of equipment, repair and maintenance,

(6) access to and dependency on credit.

A different set of variables would be required to identify the most seriously affected families from among those dependent on fish culture or fish processing.

Social and cultural issues also impact heavily on families' nutritional well-being. The following may be discriminate between the better and poorer nourished groups:

(1) educational level, training opportunities for men and women,

(2) time demands on women inside and outside the home,

(3) feeding practices and taboos relating to small children,

(4) proximity and access to goods and services.

Figure 1 depicts some of the major factors and routes by which economic, cultural, social and environmental influences affect families' food consumption and nutritional status. Each factor is determined by a series of other "minor" influences, which carry individual positive or negative impacts. While it is possible to make rational assumptions about the major factors, a great deal of work is needed to shed light on how the minor influences impact on those who are malnourished.

Of all the factors that are implicated in any one situation, research is needed to identify which are most influencial and which provide the best entry points for corrective action. If there are only limited funds available, development officers need this information to select appropriate activities and interventions and to test the efficacy of various alternatives, the availability of well researched tests of the nutritional outcomes of a variety of interventions in fishing communities will do much to guide future work. Pilot projects and controlled studies are therefore vitally important to the building of a reference of information on effective versus ineffective approaches and strategies.

The Rural and Urban Poor

Large numbers of people in urban and rural areas consume diets that are nutritionally deficient in quality and quantity. In urban areas, the under-employed or those who work at menial jobs for very low wages and have insufficient income to buy the foods they need to feed themselves and their families are at nutritional risk. Their poor food situation is exacerbated by grossly inadequate housing, water supply, health services, education, etc.

In rural areas too the marketed supply of food is often limited in quantity and variety. Exposure to and experience with non-local foods may be minimal and local prices may be high in comparison to the cash available.

The nutritional quality and diversity of fish and fish products suggest that efforts could be made to improve the food consumption of these poor consumers by increasing the availability of inexpensive products.

Research on problems related to the food purchasing behaviour and potential of the poor requires a market and consumer-oriented approach focused on their unmet food consumption needs, their foods preferences and on the constraints they face obtaining sufficient food. The groups selected for study should be somewhat representative so that lessons learned can be widely applied. Specific districts in urban areas or communities in rural areas that are recognized as being poor could constitute study sites. Shanty towns, slums and other poor residential areas are good examples of where to start.

The research should include such issues as: where the poor buy (or otherwise obtain) their food? How dependent are they on marketed food? What foods they buy? How frequently, when (days, hours, etc.)? What foods they substitute for others when prices rise or incomes fall? Whether they buy fish (or would they buy it if it were available)? At what price? What species? Is fish a familiar food? How is it used and how is it distributed in the household? What facilities exist for cooking it? What are their preferences for fresh and processed products? What attracts them to various species or products?

The markets themselves also need to be studied. What foods are for sale in poor rural and urban areas? At what prices, are supplies reliable? Do prices fluctuate? What aspects of quality, quantity, variety, etc., could be improved without passing on price increases to the poor? Are there aspects of profitability and intermediaries that could be by-passed in order that fish prices could be low?

Simple procedures for up-grading the quality of traditionally processed fish need to be developed. The possibilities for building up commercial links between fish supplies in coastal villages and fish demand in poor inland markets also need investigation.

Modern fish processing technology can develop and package fish and fish products to a variety of specifications. The specifications can be determined by, for example, the specific needs of poor urban or rural consumers, institutional feeding, food-aid or food-for-work programmes, weaning food, storage quality and convenience of preparation. In product research the approach should be to develop a product tailored to consumer's needs rather than first producing a product for which a demand must later be created.

Promotional programmes will be invaluable to the increased consumption of fish by the poor and malnourished. Research is needed to identify the best ways of making the poor familiar with new species or new products which have nutritional and economic advantages for them.

The final price of these products will be a determining factor. Prices can be reduced through efforts to prevent waste and maintain quality at many different steps in fish operations ... during handling on-board and at landing sites, through traditional and modern processing and during storage. Marketing approaches such as fair prices shops, cooperatives and subsidized outlets also offer possibilities. Some of these may have already been tried with varying degrees of success. Investigations which reveal the strong and weak points of such schemes are needed so that new applications can benefit from former experiences.

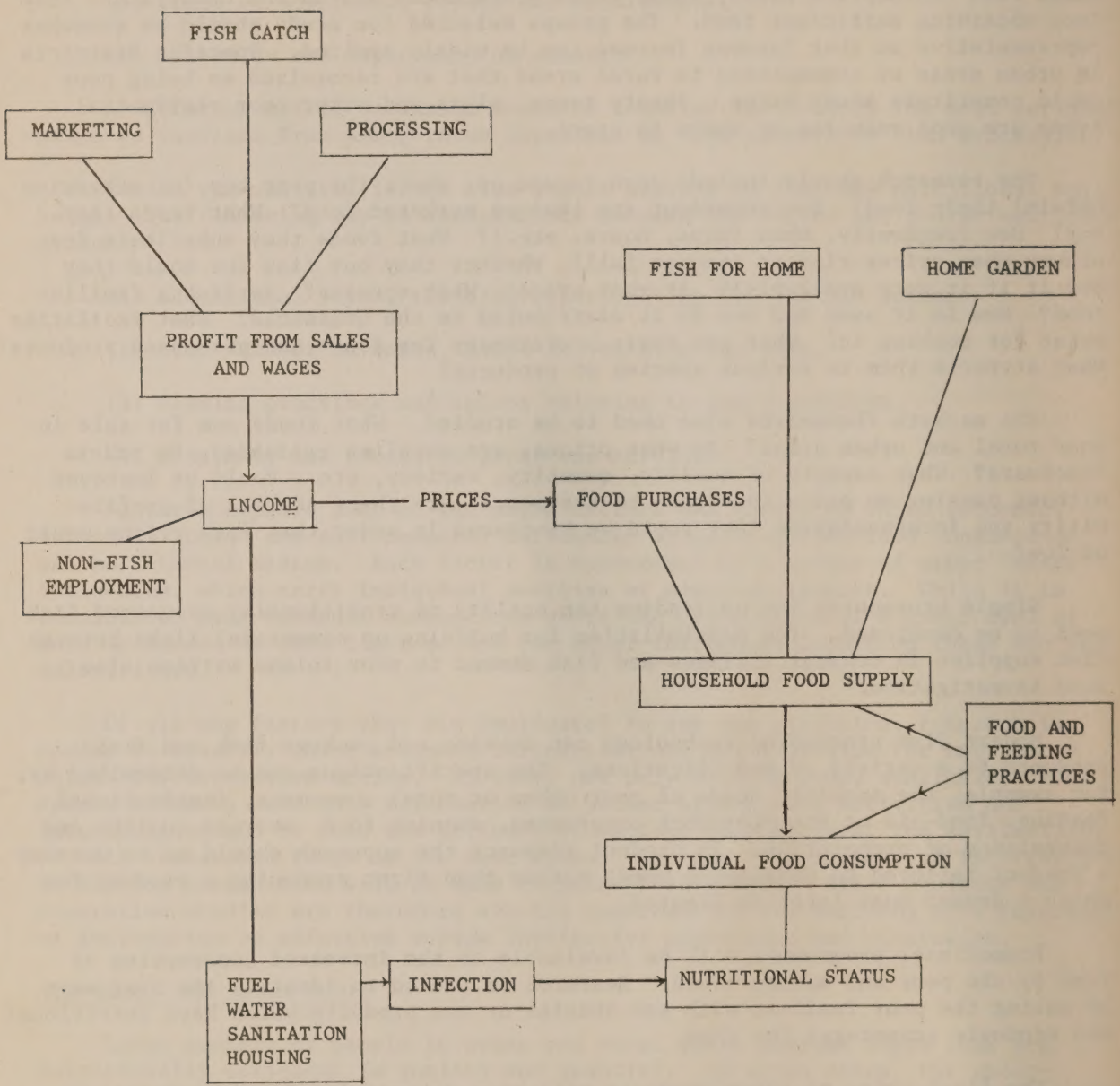
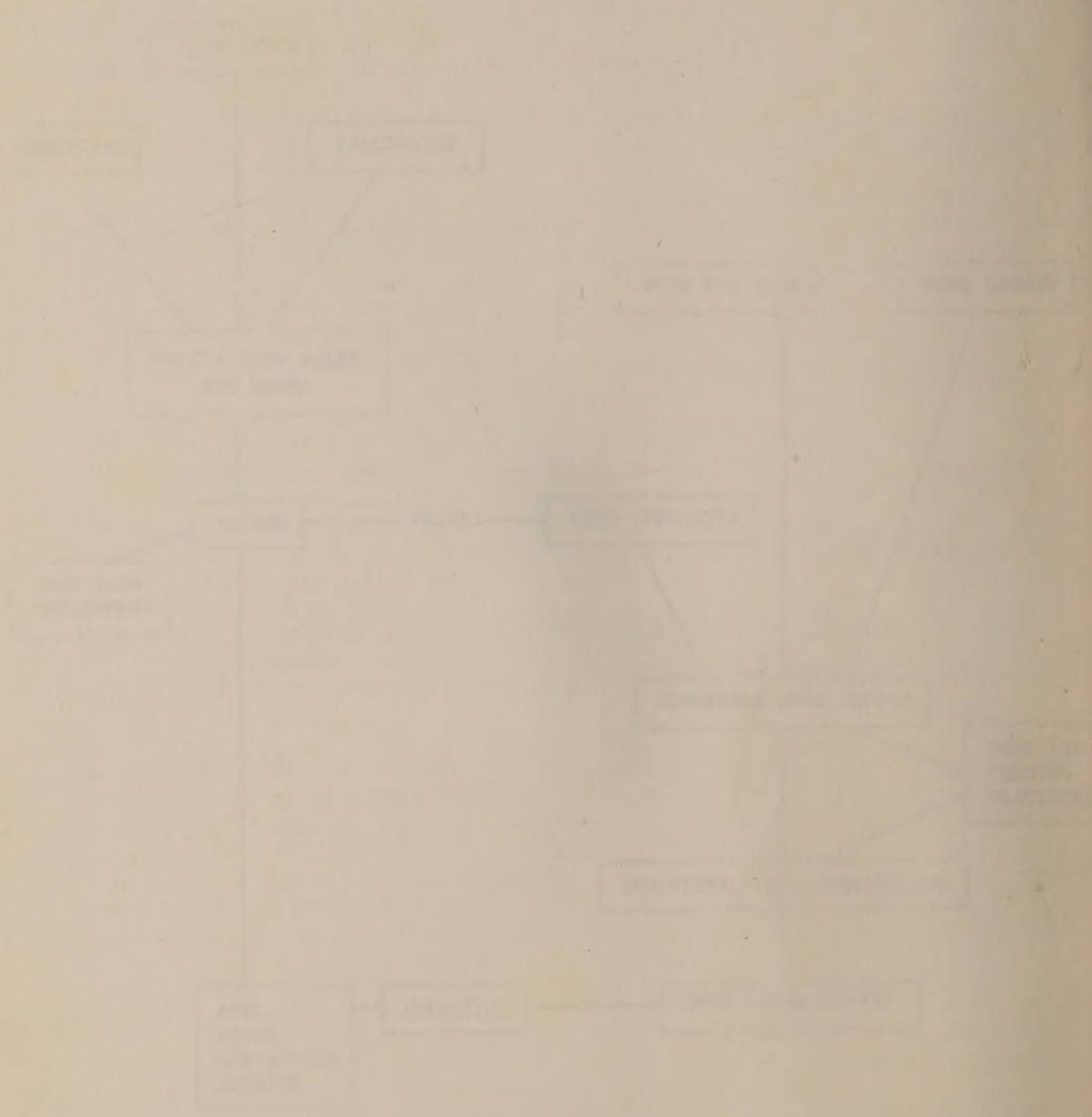
Figure 1 Simplified schema of factors influencing food consumption and nutrition in fishing villages (Source: Adapted from Nutrition in Agriculture No. 1 FAO, Rome 1982)